United States Department of Agriculture

NRCS

Natural Resources Conservation Service

In cooperation with Washington State University, Agricultural Research Center

Soil Survey of Douglas County, Washington



How To Use This Soil Survey

General Soil Map

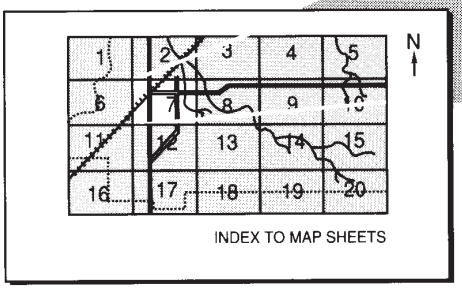
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

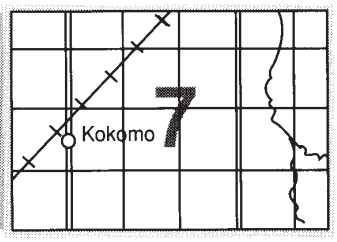
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

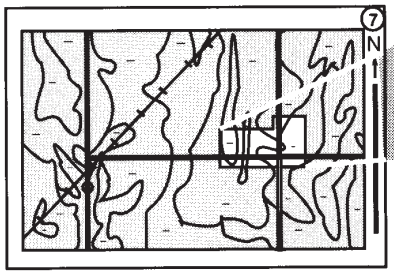


INDEX TO MAP SHEETS

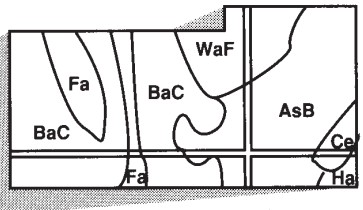


MAP SHEET

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1998. The climate tables cover the period 1971 to 2000. This survey was made cooperatively by the Natural Resources Conservation Service and the Washington State University, Agricultural Research Center. The survey is part of the technical assistance furnished to the South Douglas Conservation District and the Foster Creek Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at http://soildatamart.nrcs.usda.gov. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at http://soils.usda.gov/survey.

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Cover: Loess-mantled plateau used as nonirrigated cropland and for livestock grazing.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

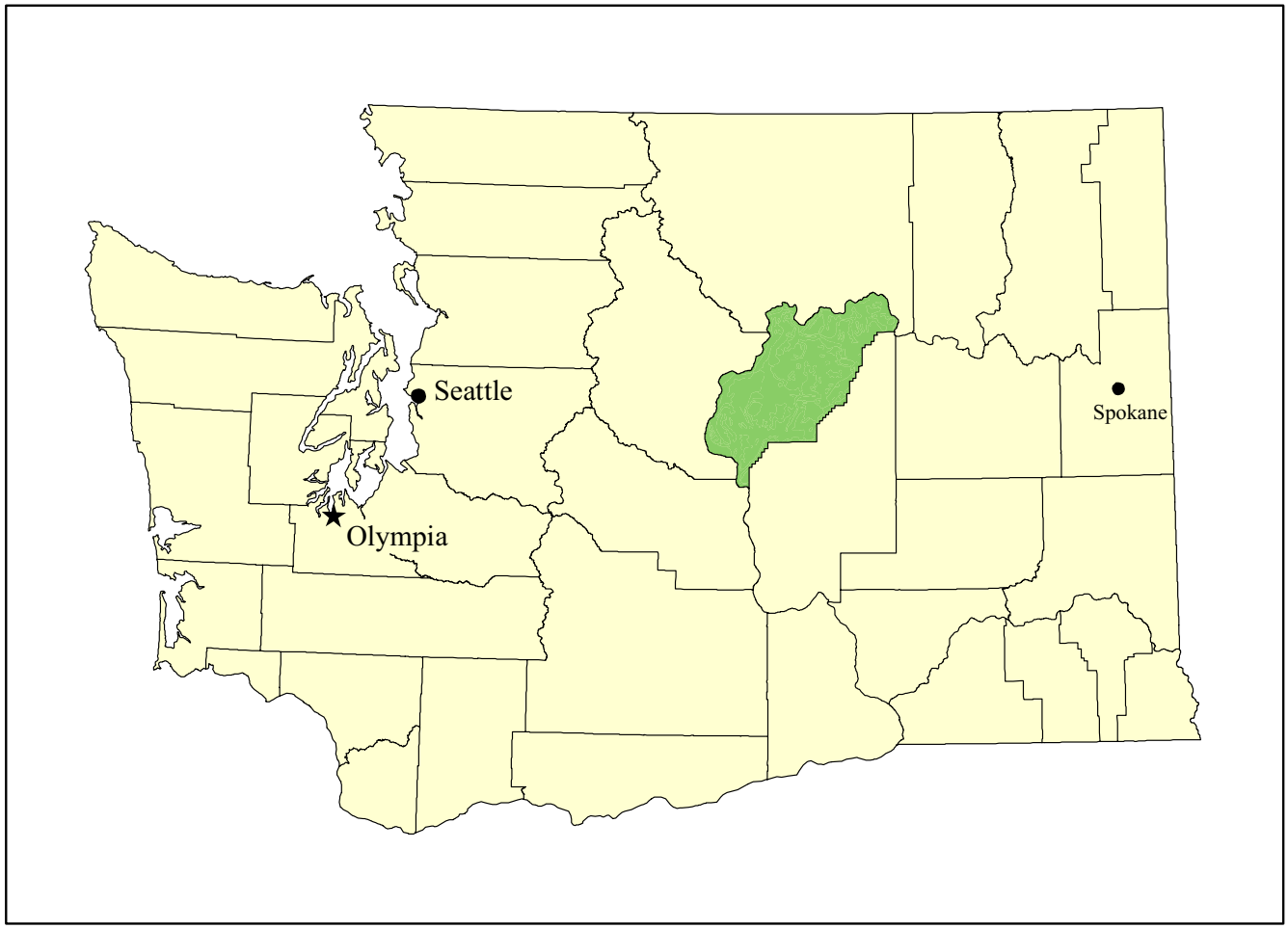
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Raymond “Gus” L. Hughbanks
State Conservationist
Natural Resources Conservation Service



Location of Douglas County in Washington.

Soil Survey of Douglas County, Washington

By Vern E. Beieler and Jay Kehne

Fieldwork by Vern Beieler, Dean White, Al Walters, Steve Campbell, Steve Rolph, Chuck Natsuhara, Pat Davis, Jay Kehne, Terry Aho, Victor Parcel, and Ed Haagen

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with Washington State University, Agricultural Research Center

Douglas County is in the central part of Washington, in the great bend area of the Columbia River. It consists of a total of 1,182,950 acres, or 1,848 square miles. Waterville, the county seat, is in the western part of the county. The population of the county was about 29,500 in 1995.

The Columbia River has cut a deep gorge along the northern and western boundaries of the county. In most places along the river, there are a series of nearly level to gently sloping terraces. Long, steep side slopes extend from these terraces to a broad upland plateau. This plateau, which is underlain by basalt, makes up most of the county. It has undulating and rolling topography and is interspersed with intermittent drainageways. Moses Coulee, a valley that extends to the southwest, is in the southern part of the county. Elevation in the county ranges from about 600 feet near the Columbia River to about 4,200 feet on Badger Mountain.

Farming is the main economic enterprise in the county. The climate along the Columbia River is suitable for irrigated fruit orchards, and the climate on the upland plateau is suitable for nonirrigated crops and livestock grazing. The soils along the river are nearly level and well drained. The texture of these soils varies widely, but it typically is sandy loam that is underlain by gravel deposits in some areas. The upland soils generally are deep and well drained. The surface layer is silt loam, loam, or fine sandy loam. A few areas of wet soils are in depressions and along drainageways on the upland plateau.

This soil survey updates the survey of Douglas County, Washington, published in 1981 (USDA, 1981b). It provides additional information and has new maps, which show the soils on the upland plateau in greater detail.

General Nature of the County

History and Development

Douglas County, originally part of Spokane and Lincoln Counties, was formed in 1883. Waterville, the county seat, has a population of about 1,130.

Farming in the county began in the 1870's, but most of the county was settled in the 1880's. During the late 1920's, most of the nonirrigated wheat farms were subject to moderate or severe wind erosion. By the mid-1930's, the rate of erosion had been reduced, largely as a result of increased rainfall and use of better methods of cultivation. As better methods of tillage are developed and applied, the rate of water and wind erosion generally is reduced.

About 61 percent of the county is used as cropland, and 38 percent is used as rangeland. The remaining 1 percent is forestland, urban land, and water areas. About 5 percent of the county is used as irrigated cropland, mostly for apple orchards. The remaining cropland is used mainly for nonirrigated summer-fallow wheat production. The rangeland generally is used in conjunction with the nonirrigated wheat farms. Forestland is limited to about 15,000 acres, most of which occurs on the north side of Badger Mountain and as scattered stands of Douglas fir and ponderosa pine in Pine Canyon and along the northwestern edge of the county.

Four large hydroelectric dams—Chief Joseph, Wells, Rocky Reach, and Rock Island—are on the Columbia River and extend into Douglas County. These dams provide a large amount of the water for storage and electricity for the Pacific Northwest.

The town of East Wenatchee, in the southwestern part of the county, has grown rapidly. Housing developments have increased greatly in the past several years, and schools and businesses are also expanding. A large mineral processing plant is just south of East Wenatchee. From almost anywhere in the county, there is a beautiful view of the Cascade Mountains to the west.

Golfing, hunting, fishing, camping, swimming, sports car racing, and boating are popular summer recreational activities in the county. In winter, skiing at the Badger Mountain ski area and snowmobiling are popular activities.

Climate

The Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon, helped to prepare this section.

The climate of Douglas County is characterized by warm, dry summers and cool, moist winters. The Rocky Mountains shield the county from the continental climatic extremes that occur to the east. On the west, the Cascade Mountains moderate the effects of moisture-laden weather systems from the Pacific Ocean. Summers are warm and dry because high-pressure systems keep most of the low-pressure weather systems from entering the state. These high-pressure systems may produce heat waves that last 3 to 10 days. Late in fall and in winter, southwesterly and westerly winds from the Pacific Ocean provide moisture during the wetter season, which begins in fall, reaches a peak in winter in the form of snow, and then decreases in spring.

Precipitation in the county is lowest, 7 to 9 inches, along the Columbia River. It increases as elevation increases to a maximum of 18 to 24 inches on the north side of Badger Mountain. Most of the precipitation occurs in November through May. Occasional hailstorms or thunderstorms occur in summer in some years.

Humidity in the county generally is low because of the low amount of rainfall in summer and the wind currents. The evapotranspiration rate is high during the growing season because of the low humidity and warm air temperatures. In fall and winter, fog may persist for several hours to several days.

The wind blows from all directions but generally from the southwest or west. Periods of high winds are infrequent, and these winds rarely damage crops. Sandy soils and soils that have a high content of volcanic ash are most susceptible to wind erosion. Winds can be expected to reach 50 to 60 miles per hour once in 2 years and 70 to 80 miles per hour once in 50 years.

The climate tables were created from data recorded at Chief Joseph Dam, Waterville, and Wenatchee FAA AP, Washington. Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from data recorded at the First Order station at Yakima, Washington.

Table 1 gives data on temperature and precipitation for the survey area during the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 29.3 degrees F at Chief Joseph Dam, 25.9 degrees at Waterville, and 30.1 degrees at Wenatchee FAA AP and the average daily minimum temperature is 22.5 degrees, 18.6 degrees, and 23.8 degrees, respectively. The lowest temperatures on record are -19 degrees at Chief Joseph Dam, which occurred on December 29, 1968; -33 degrees at Waterville, which occurred on December 30, 1968; and -21 degrees at Wenatchee FAA AP, which occurred on December 30, 1968. In summer, the average temperature is 71.3 degrees at Chief Joseph Dam, 66.0 degrees at Waterville, and 70.8 degrees at Wenatchee FAA AP and the average daily maximum temperature is 86.3 degrees, 80.3 degrees, and 83.8 degrees, respectively. The highest temperatures on record are 110 degrees at Chief Joseph Dam, which occurred on August 4, 1998; 105 degrees at Waterville, which occurred on July 22, 1994; and 109 degrees at Wenatchee FAA AP, which occurred on August 4, 1961.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation is about 10.88 inches at Chief Joseph Dam. Of this, about 3.97 inches, or 36 percent, usually falls in April through September. The average annual precipitation is about 11.47 inches at Waterville. Of this, about 3.48 inches, or 30 percent, usually falls in May through September. The average annual precipitation is about 8.53 inches at Wenatchee FAA AP. Of this, about 3.25 inches, or 38 percent, usually falls in April through October.
The growing season for most crops falls within these periods. The heaviest 1-day rainfall during the period of record was 1.74 inches at Chief Joseph Dam on July 23, 1992, 2.79 inches at Waterville on June 11, 1948, and 1.51 inches at Wenatchee FAA AP on August 18, 1975. Thunderstorms occur on about 9 days each year at Chief Joseph Dam, 8 days at Waterville, and 7 days at Wenatchee FAA AP. Most occur in June.

The average seasonal snowfall is 26.9 inches at Chief Joseph Dam, 42.9 inches at Waterville, and 32.9 inches at Wenatchee FAA AP. The greatest snow depth at any one time during the period of record was 24 inches recorded on February 4, 1952, at Chief Joseph Dam, 45 inches recorded on January 30, 1969, at Waterville, and 29 inches recorded on December 30, 1996, at Wenatchee FAA AP. On an average, 16 days per year at Chief Joseph Dam and Waterville and 51 days at Wenatchee FAA AP have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 10 inches recorded on December 29, 1996, at Chief Joseph Dam, 14 inches recorded on December 9, 1971, at Waterville, and 19 inches recorded on November 19, 1996, at Wenatchee FAA AP.

At Chief Joseph Dam, the average relative humidity in midafternoon is about 47 percent. Humidity is higher at night, and the average at dawn is about 82 percent. At Waterville and Wenatchee FAA AP, the average relative humidity in midafternoon is about 45 percent. Humidity is higher at night, and the average at dawn is about 78 percent. The sun shines 77 percent of the time in summer and 30 percent in winter at Chief Joseph Dam and 79 percent of the time in summer and 32 percent in winter at Waterville and Wenatchee FAA AP. The prevailing wind is from the west. Average windspeed is highest, 9.3 miles per hour at Chief Joseph Dam, 9.0 miles per hour at Waterville, and 8.5 miles per hour at Wenatchee FAA AP, in April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the county. The information includes a description of the soils and miscellaneous areas and their location. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They studied many soil profiles, which show the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the county and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the county and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the county, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses. Soil scientists interpret the data from these analyses as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a

high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the county, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

This soil survey updates the survey of Douglas County, Washington, published in 1981 (USDA, 1981b). The 1981 soil survey was published at two map scales. The high-intensity portion of the county was mapped at a scale of 1:24,000. The low-intensity portion was mapped at a scale of 1:63,360. The high-intensity portion included the areas of irrigated and nonirrigated cropland adjacent to the Columbia River and below the basalt plateau scarp. The low-intensity portion included the areas of nonirrigated cropland and rangeland on the summit and scarp slopes of the basalt plateau.

Shortly after the publication of the 1981 soil survey and the advent of the Farm Bill (Food Security Act) in 1985, it was determined that the scale of the low-intensity portion was not adequate for conservation planning. Re-mapping of the low-intensity portion was initiated in 1988 and was complied at a scale of 1:24,000. The high-intensity portion was not re-mapped, but it was compiled onto more recent orthophotography at a scale of 1:24,000. The soil database and the soil properties and features were updated according to the current standards of the National Cooperative Soil Survey program.

After the maps were compiled and digitized, the digital polygon spatial layer was superimposed over the publication imagery at a scale of 1:24,000. During this process, it was determined that the intensity of mapping (line density) was too high for the scale of the publication maps. The spatial layer was then superimposed over the publication imagery at a scale of 1:12,000. At this scale the soil map unit lines remained coincident with the natural landscape breaks; thus, in 2004 it was decided to publish this updated soil survey at a scale of 1:12,000.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils on Nonglaciated Plateaus

1. Alstown-Renslow-Benwy

Deep and very deep, well drained soils that formed in loess over older loess and receive 9 to 12 inches of precipitation

Proportion of extent: 7 percent
Landform: Nonglaciated plateaus
Slope range: Typically 0 to 30 percent, but Alstown soils range to 65 percent
Elevation: 1,500 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual temperature: 48 to 50 degrees F
Frost free period: 130 to 180 days
Map unit composition:

- Alstown soils—30 percent
- Renslow soils—30 percent
- Benwy soils—20 percent
- Minor soils—20 percent

Alstown
Depth class: Very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess over older loess

Renslow
Depth class: Deep and very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess over older loess or over a duripan in some areas

Benwy
Depth class: Deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess over older loess mixed with colluvium over a duripan over bedrock

Minor soils: Aarup, Achelake, Alsash, Deercut, Renshigh, Ritzville, Selah, Slusser, Toler, and Zen soils
Major use: Nonirrigated cropland
Major management concerns: Low annual precipitation, water erosion, and wind erosion

2. Dougville-Farmer-Broadax

Deep and very deep, well drained soils that formed in loess and volcanic ash over older loess and receive 12 to 15 inches of precipitation

Proportion of extent: 7 percent
Landform: Nonglaciated plateaus
Slope range: Typically 0 to 30 percent, but Dougville soils range to 65 percent
Elevation: 2,400 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual temperature: 47 to 49 degrees F
Frost free period: 110 to 165 days
Map unit composition:
Dougville soils—35 percent
Farmer soils—30 percent
Broadax soils—10 percent
Minor soils—25 percent

Dougville
Depth class: Deep and very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over older loess or over a duripan in some areas

Farmer
Depth class: Deep and very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over older loess or over a duripan in some areas

Broadax
Depth class: Deep and very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess over older loess or over a duripan in some areas

Minor soils: Badgermont, Ebadlow, Hanning, Kiakus, Lorena, McCue, Morrow, Norax, Shinn, Slickear, Spofford, Titchenal, and Van Nostern soils
Major use: Nonirrigated cropland
Major management concerns: Water erosion and wind erosion

3. Argabak-Grinrod-Morrow

Very shallow and moderately deep, well drained soils that formed in residuum and colluvium or loess over older loess over bedrock

Proportion of extent: 18 percent
Landform: Nonglaciated plateaus (fig. 1)
Slope range: 0 to 70 percent
Elevation: 1,000 to 3,500 feet
Mean annual precipitation: 9 to 15 inches
Mean annual temperature: 47 to 50 degrees F
Frost free period: 110 to 180 days
Map unit composition:
Argabak soils—40 percent
Grinrod soils—15 percent
Morrow soils—10 percent
Minor soils—35 percent

Argabak
Depth class: Very shallow
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Residuum and colluvium over bedrock

Grinrod
Depth class: Moderately deep
Drainage class: Well drained

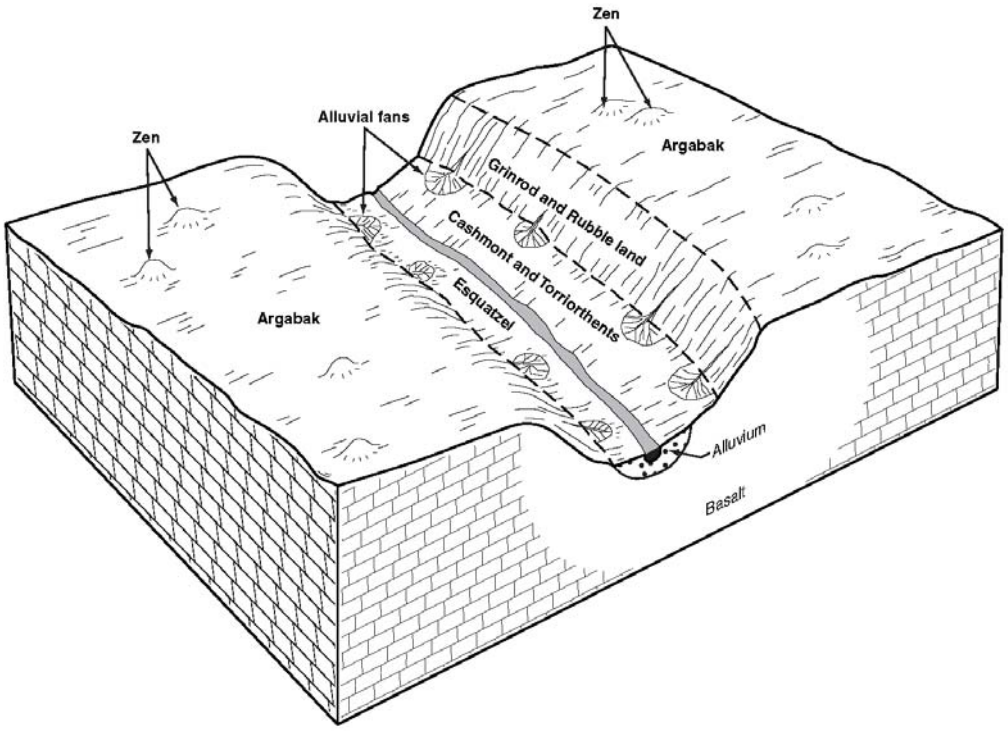


Figure 1.—Cross-section of the Moses Coulee area.

Position on landform: Interfluves and side slopes
Parent material: Colluvium and residuum over bedrock

Morrow
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess over older loess over bedrock

Minor soils: Badge, Bakeoven, Camaspatch, Cheviot, Dinkels, Entiat, Horseflat, Kiona, Lickskillet, and Ralls soils, Rock outcrop, Roloff soils, Rubble land, Starbuck and Toler soils, Torriorthents, Van Nostern soils, Vitrandic Argixerolls, and Winblow and Zen soils
Major uses: Livestock grazing and wildlife habitat
Major management concerns: Overgrazing, brush management, weed control, soil compaction, and water development

4. Toler-Aarup-Deercut

Very shallow to moderately deep, well drained soils that formed in loess and volcanic ash over older loess over a duripan or bedrock

Proportion of extent: 10 percent
Landform: Nonglaciated plateaus
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual temperature: 48 to 50 degrees F
Frost free period: 130 to 180 days
Map unit composition:
Toler soils—40 percent
Aarup soils—30 percent
Deercut soils—15 percent
Minor soils—15 percent

Toler
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over older loess over bedrock

Aarup
Depth class: Shallow and very shallow
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over a duripan over bedrock

Deercut
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over older loess over a duripan over bedrock

Minor soils: Drysel, Dutchenry, Jordy, Kester, Scoon, Selah, Sevar, Silico, Sprauer, Taunton, Terlan, Wanapum, Whiteye, Willis, and Winblow soils

Major use: Nonirrigated cropland
Major management concerns: Low annual precipitation, wind erosion, water erosion, and low available water capacity

Soils on Till Plains on Glaciated Plateaus

5. Touhey-Tagear-Stubblefield

Deep and moderately deep, well drained soils that formed in loess and volcanic ash over glacial till over a duripan over dense glacial till and over bedrock in some areas and receive 9 to 13 inches of precipitation

Proportion of extent: 19 percent
Landform: Till plains on glaciated plateaus (fig. 2)
Slope range: 0 to 70 percent
Elevation: 1,000 to 2,900 feet
Mean annual precipitation: 9 to 13 inches
Mean annual temperature: 48 to 50 degrees F
Frost free period: 120 to 185 days
Map unit composition:
Touhey soils—55 percent
Tagear soils—20 percent
Stubblefield soils—10 percent
Minor soils—15 percent

Touhey
Depth class: Moderately deep
Drainage class: Well drained

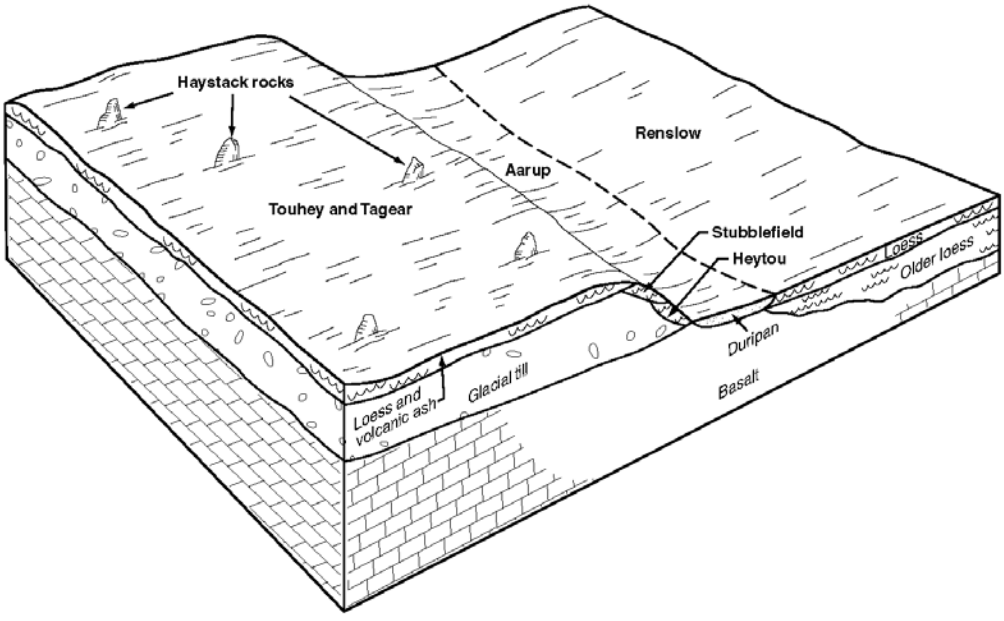


Figure 2.—Cross-section of the contact between the glaciated and nonglaciated plateaus in areas that receive 9 to 12 inches of precipitation.

Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over a duripan over glacial till or over dense glacial till over bedrock in some areas

Tagear
Depth class: Deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till or bedrock

Stubblefield
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and glacial till over a duripan over dense glacial till

Minor soils: DelRio soils, Durixerolls, Halaquepts, Haploxerolls, and Heytou, Skaha, St. Andrews, Strat, and Tubspring soils
Major use: Nonirrigated cropland
Major management concerns: Low annual precipitation, water erosion, wind erosion, and rock fragments on soil surface

6. Siweeka-Timentwa-Brazlan

Deep and moderately deep, well drained soils that formed in loess and volcanic ash over a duripan over glacial till or over glacial till over a duripan and over bedrock in some areas and receive 11 to 18 inches of precipitation

Proportion of extent: 7 percent
Landform: Till plains on glaciated plateaus
Slope range: 0 to 30 percent
Elevation: 1,300 to 3,200 feet
Mean annual precipitation: 11 to 18 inches
Mean annual temperature: 47 to 50 degrees F
Frost free period: 110 to 170 days
Map unit composition:
Siweeka soils—50 percent
Timentwa soils—20 percent
Brazlan soils—15 percent
Minor soils—15 percent

Siweeka
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over a duripan over glacial till and over bedrock in some areas

Timentwa
Depth class: Deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till or bedrock

Brazlan
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash mixed with glacial till over a duripan over bedrock

Minor soils: Alecanyon, Cachebutte, Conconully, and Dezellem soils, Durixerolls, Ginnis soils, Halaquepts, and Nemire, Nespelem, Wagberg, and Willock soils
Major use: Nonirrigated cropland
Major management concerns: Water erosion, wind erosion, and rock fragments on soil surface

7. Argabak-Timentwa-Heytou

Deep, moderately deep, and very shallow, well drained soils that formed in loess and volcanic ash over glacial till, loess mixed with glacial till, or residuum and colluvium over a duripan, bedrock, or dense glacial till

Proportion of extent: 19 percent
Landform: Till plains on glaciated plateaus
Slope range: 0 to 70 percent
Elevation: 1,000 to 3,500 feet
Mean annual precipitation: 9 to 15 inches
Mean annual temperature: 47 to 50 degrees F
Frost free period: 110 to 180 days
Map unit composition:
Argabak soils—35 percent
Timentwa soils—25 percent
Heytou soils—15 percent
Minor soils—25 percent

Argabak
Depth class: Very shallow
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Residuum and colluvium over bedrock

Timentwa
Depth class: Deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till or bedrock

Heytou
Depth class: Moderately deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Loess mixed with glacial till over dense glacial till

Minor soils: Alecanyon, Brazlan, Cachebutte, Dezellem, and Lickskillet soils, Rock outcrop, Roosevelt soils, Rubble land, and Soaplake, Strat, Stubblefield, Siweeka, and Swakane soils
Major use: Livestock grazing

Major management concerns: Overgrazing, brush management, weed control, soil compaction, reseeding, and water development

Soils on Terraces, Kames, and Eskers on Glaciated Plateaus

8. Simsfield-Ellisforde

Very deep and moderately deep, well drained and moderately well drained soils that formed in loess or loess and volcanic ash over glaciolacustrine deposits

Proportion of extent: 4 percent
Landform: Terraces and depressions of glaciated plateaus
Slope range: 0 to 65 percent
Elevation: 1,000 to 2,600 feet
Mean annual precipitation: 9 to 13 inches
Mean annual temperature: 48 to 50 degrees F
Frost free period: 120 to 180 days
Map unit composition:
Simsfield soils—60 percent
Ellisforde soils—25 percent
Minor soils—15 percent

Simsfield
Depth class: Moderately deep
Drainage class: Moderately well drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glaciolacustrine deposits

Ellisforde
Depth class: Very deep
Drainage class: Well drained
Position on landform: Treads, risers, interfluves, and side slopes
Parent material: Loess over glaciolacustrine deposits

Minor soils: DelRio soils, Durixerolls, Elvedere soils, Halaquepts, and Nemire, Nespelem, and Nyssaton soils
Major uses: Nonirrigated cropland and livestock grazing
Major management concerns: Livestock grazing—overgrazing, brush management, weed control, reseeding, and water development; nonirrigated cropland—low annual precipitation, water erosion, and wind erosion

9. Strat-Tubspring-Cachebutte

Very deep, well drained and excessively drained soils that formed in glacial outwash or loess and volcanic ash over glacial outwash

Proportion of extent: 2 percent
Landform: Terraces, kames, and eskers on glaciated plateaus
Slope range: 0 to 65 percent
Elevation: 1,200 to 3,200 feet
Mean annual precipitation: 9 to 15 inches
Mean annual temperature: 47 to 50 degrees F
Frost free period: 110 to 180 days

Map unit composition:
Strat soils—45 percent
Tubspring soils—25 percent
Cachebutte soils—15 percent
Minor soils—15 percent

Strat
Depth class: Very deep
Drainage class: Well drained
Position on landform: Interfluves and side slopes
Parent material: Glacial outwash

Tubspring
Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glacial outwash

Cachebutte
Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on landform: Interfluves and side slopes
Parent material: Loess and volcanic ash over glacial outwash

Minor soils: Alecanyon and DelRio soils, Durixerolls, Ewall and Farrell soils, Haploxerolls, and Nemire, Sanbee, Skaha, and Stratford soils
Major uses: Livestock grazing and nonirrigated cropland
Major management concerns: Livestock grazing—overgrazing, brush management, weed control, reseeding, and water development; nonirrigated cropland—low annual precipitation, water erosion, wind erosion, and rock fragments on the soil surface

Soils on Glacial Outwash Terraces along the Columbia River

10. Wellsdam-Peshastin

Very deep and moderately deep, well drained soils that formed in loess and volcanic ash over a duripan over dense glacial till or loess mixed with glacial outwash and glacial till

Proportion of extent: 1 percent
Landform: Terraces adjacent to glaciated plateaus
Slope range: 3 to 60 percent
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual temperature: 49 to 51 degrees F
Frost free period: 140 to 190 days
Map unit composition:
Wellsdam soils—65 percent
Peshastin soils—15 percent
Minor soils—20 percent

Wellsdam
Depth class: Moderately deep
Drainage class: Well drained

Position on landform: Risers and treads
Parent material: Loess and volcanic ash over a duripan over dense glacial till

Peshastin
Depth class: Very deep
Drainage class: Well drained
Position on landform: Risers and treads
Parent material: Loess mixed with glacial outwash and glacial till

Minor soils: Brays, Chelan, and Couleedam soils, Rock outcrop, and Soaplake soils
Major uses: Livestock grazing and irrigated cropland
Major management concerns: Livestock grazing—overgrazing, brush management, weed control, reseeding, and water development; irrigated cropland—irrigation water management, frost management, and water erosion

11. Pogue-Quincy-Torriorthents

Very deep, somewhat excessively drained and excessively drained soils that formed in loess over glacial outwash, eolian sand, or glacial outwash

Proportion of extent: 5 percent
Landform: Terraces adjacent to the Columbia River (fig. 3)
Slope range: 0 to 70 percent
Elevation: 600 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual temperature: 48 to 51 degrees F
Frost free period: 140 to 195 days



Figure 3.—Irrigated orchards in areas of Pogue, Quincy, and Malaga soils on terraces near the Columbia River. Rangeland is in areas of Torriorthents.

Map unit composition:
Pogue soils—25 percent
Quincy soils—25 percent
Torriorthents—20 percent
Minor soils—30 percent

Pogue
Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on landform: Treads and risers
Parent material: Loess over glacial outwash

Quincy
Depth class: Very deep
Drainage class: Excessively drained
Position on landform: Risers and treads
Parent material: Eolian sand

Torriorthents
Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on landform: Treads
Parent material: Glacial outwash

Minor soils: Aeneas, Beverly, Burbank, Burch, Cashmere, Cashmont, Ellisforde, Ephrata, Esquatzel, Finley, Logy, Magallon, Malaga, Peshastin, and Supplee soils
Major uses: Irrigated cropland, livestock grazing, and wildlife habitiat
Major management concerns: Irrigated cropland—irrigation water management, frost management, pest control, and water erosion; livestock grazing—overgrazing, brush management, weed control, reseeding, wind erosion, and water erosion

Soils on Forested Mountains

12. Stemilt-Cordy

Very deep and deep, well drained soils that formed in loess and volcanic ash over colluvium over bedrock and loess and volcanic ash over older loess

Proportion of extent: 1 percent
Landform: Top and north-facing side slopes of Badger Mountain (fig. 4)
Slope range: 3 to 65 percent
Elevation: 2,000 to 4,200 feet
Mean annual precipitation: 14 to 24 inches
Mean annual temperature: 43 to 46 degrees F
Frost free period: 75 to 125 days
Map unit composition:
Stemilt soils—55 percent
Cordy soils—25 percent
Minor soils—20 percent

Stemilt
Depth class: Deep and very deep
Drainage class: Well drained

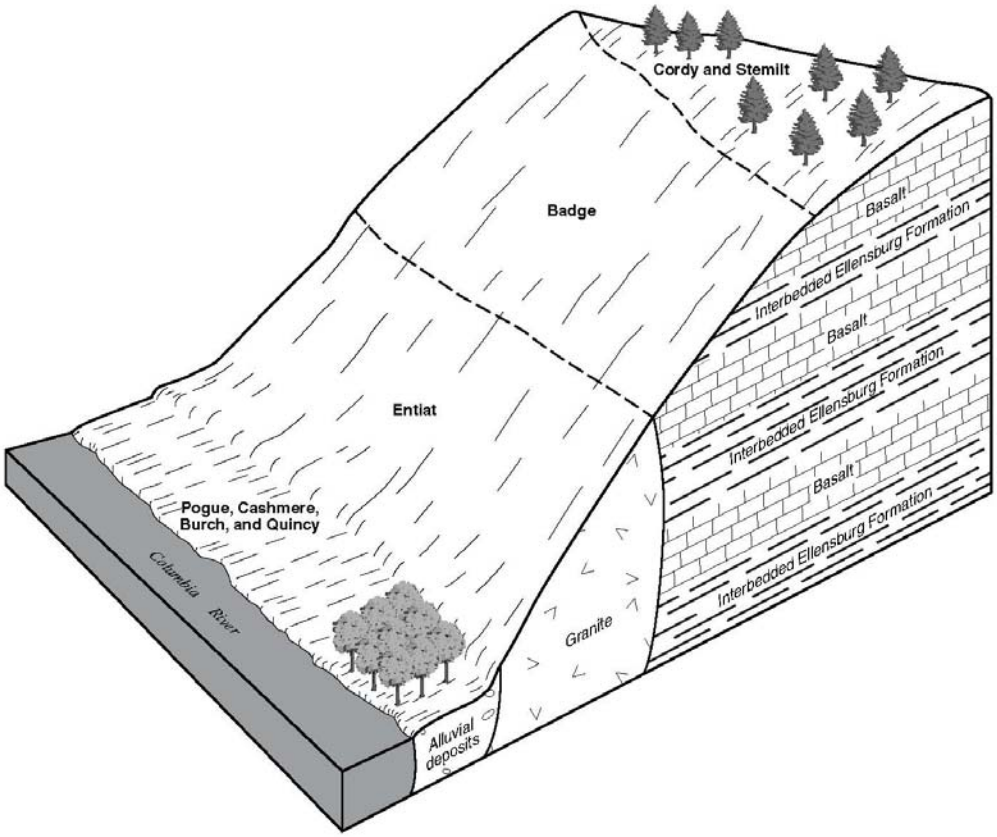


Figure 4.—Cross-section of the area from the Columbia River to the top of Badger Mountain.

Position on landform: Top and north-facing slopes of Badger Mountain
Parent material: Loess and volcanic ash over colluvium over bedrock

Cordy
Depth class: Very deep
Drainage class: Well drained
Position on landform: Upper north-facing side slopes of Badger Mountain
Parent material: Loess and volcanic ash over older loess

Minor soils: Badge, Kiakus, Leidl, Pateros, and Watco soils
Major use: Forestry
Major management concerns: Plant competition, compaction, erosion, seedling mortality, steepness of slope, puddling, and dust hazard

Broad Land Use Considerations

The soils in Douglas County vary widely in their suitability for major land uses. About 56 percent of the county is used for nonirrigated crops, dominantly wheat and barley. Most of this acreage is in general soil map units 1, 2, 4, 5, 6, 8, and 9. Low annual precipitation, wind erosion, and water erosion are the major management concerns.

About 5 percent of the county is used for irrigated crops, mainly orchards. This acreage is mostly in general soil map unit 11. Irrigation water management and pest and frost control are the major management concerns.

About 38 percent of the county is used as rangeland. Most of this acreage is in general soil map units 3, 7, and 10. Overgrazing, brush management, weed control, reseeding, and water development are the major management concerns.

Less than 1 percent of the county is forestland. It is concentrated in general soil map unit 12. Soil compaction, water erosion, seedling mortality, steepness of slope, and plant competition are the major management concerns.

The remainder of county is areas of urban land and water. Urban development is an important concern. Each year a considerable amount of land in general soil map unit 11 is developed for urban uses and as homesites, particularly in the East Wenatchee area.

The general soil map is suitable for broad land use considerations, and the detailed soil maps are suitable for determining specific areas for onsite investigation. In general, soils that are well suited to cultivated crops are also well suited to urban development. The value of prime agricultural land, however, should be considered when determining land uses.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase

commonly indicates a feature that affects use or management. For example, Pogue fine sandy loam, 8 to 15 percent slopes, is a phase of the Pogue series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Renslow-Alstown-Kester complex, 3 to 8 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Xerofluvents-Beverly association, 0 to 15 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Each detailed soil map unit is assigned to a major land resource area (MLRA) (USDA, 1981a). The MLRA for each detailed soil map unit is given in this section under the heading "Map Unit Setting." Some map units, such as Rock outcrop, Water, and other miscellaneous areas, may not be assigned to a single MLRA because the unit can occur in any MLRA.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Aarup ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Aarup and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, steeper sloping (5 percent)
- Deercut soils (5 percent)
- Slusser soils (5 percent)
- Sprauer soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

2—Aarup ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Aarup and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, steeper sloping (5 percent)
- Deercut soils (5 percent)
- Slusser soils (5 percent)
- Sprauer soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

3—Aarup complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Aarup and similar soils: 40 percent
Aarup, eroded, and similar soils: 40 percent
Dissimilar minor components: 20 percent

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Characteristics of Aarup Soil, Eroded

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over bedrock
Slope range: 0 to 8 percent
Depth to restrictive features: 4 to 10 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 20 inches; cemented material
20 to 30 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, steeper sloping (10 percent)
- Slusser soils (5 percent)
- Sprauer soils (3 percent)
- Deercut soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

4—Achelake ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Achelake and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Achelake Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 13.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 20 inches; ashy silt loam
20 to 60 inches; ashy silt loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Kester soils (5 percent)
- Sprauer soils (5 percent)
- Waterflat soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

5—Aeneas fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Aeneas and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Aeneas Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 24 inches; fine sandy loam
24 to 30 inches; loamy fine sand
30 to 60 inches; sand

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Cashmont soils (5 percent)
- Quincy soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

6—Alecanyon very cobbly ashy fine sandy loam, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Alecanyon and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 3 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Alecanyon soils, steeper sloping (5 percent)
- Nemire soils (3 percent)
- Brazlan soils (2 percent)
- Ewall soils (2 percent)
- Siweeka soils (2 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

7—Alecanyon very cobbly ashy loamy sand, 30 to 65 percent slopes, eroded

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Alecanyon and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 30 to 65 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 9 inches; very cobbly ashy loamy sand
9 to 12 inches; very cobbly ashy fine sandy loam
12 to 20 inches; very cobbly loamy coarse sand
20 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Alecanyon soils, very stony surface (5 percent)
- Ewall soils (5 percent)
- Brazlan soils (2 percent)
- Haploxerolls (1 percent)
- Siweeka soils (1 percent)
- Timentwa soils (1 percent)

Major Use

Livestock grazing

8—Alecanyon-Cachebutte complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Alecanyon and similar soils: 55 percent
Cachebutte and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Characteristics of Cachebutte Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam
22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very cobbly sandy loam
34 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Aquolls (5 percent)
- Nemire soils (3 percent)
- Brazlan soils (2 percent)

- Ewall soils (2 percent)
- Siweeka soils (2 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

9—Alecanyon-Cachebutte complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Alecanyon and similar soils: 55 percent
Cachebutte and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 8 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Characteristics of Cachebutte Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 8 to 30 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam
22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very cobbly sandy loam
34 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Nemire soils (3 percent)
- Brazlan soils (2 percent)
- Ewall soils (2 percent)
- Siweeka soils (2 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

10—Alecanyon-Cachebutte-Nemire complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Alecanyon and similar soils: 30 percent
Cachebutte and similar soils: 30 percent
Nemire and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Characteristics of Cachebutte Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam

22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very cobbly sandy loam
34 to 60 inches; extremely cobbly coarse sand

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 24 inches; ashy fine sandy loam
24 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Aquolls (7 percent)
- Ewall soils (2 percent)
- Rock outcrop (2 percent)
- Strat soils (2 percent)
- Tubspring soils (2 percent)

Major Use

Livestock grazing

11—Alsash ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alsash and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Alsash Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Components

- Alsash soils, steeper sloping (5 percent)
- Deercut soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

12—Alsash-Slusser complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alsash and similar soils: 45 percent
Slusser, indurated substratum, and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Alsash Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 60 inches; very gravelly fine sandy loam

Characteristics of Slusser Soil, Indurated Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 41 inches; silt loam
41 to 45 inches; cemented material
45 to 50 inches; stratified cemented material ranging to silt loam
50 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils (3 percent)
- Corbaley soils (3 percent)
- Deercut soils (3 percent)
- Kester soils (3 percent)
- Sprauer soils (3 percent)
- Toler soils (3 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

13—Alsash-Slusser complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alsash and similar soils: 45 percent
Slusser, indurated substratum, and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Alsash Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 11 inches; ashy fine sandy loam

11 to 28 inches; silt loam
28 to 60 inches; very gravelly fine sandy loam

Characteristics of Slusser Soil, Indurated Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 41 inches; silt loam
41 to 45 inches; cemented material
45 to 50 inches; stratified cemented material ranging to silt loam
50 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils (3 percent)
- Corbaley soils (3 percent)
- Deercut soils (3 percent)
- Kester soils (3 percent)
- Sprauer soils (3 percent)
- Toler soils (3 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

14—Alstown silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alstown and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Alstown soils, steeper sloping (5 percent)
- Kester soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

15—Alstown silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alstown and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Alstown soils, steeper sloping (5 percent)
- Kester soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

16—Alstown-Cheviot complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alstown and similar soils: 60 percent
Cheviot and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Alstown Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Cheviot Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly loam
10 to 32 inches; very cobbly silt loam
32 to 60 inches; extremely cobbly loam

Dissimilar Minor Components

- Grinrod soils (5 percent)
- Willis soils (5 percent)

Major Use

Livestock grazing

17—Alstown-Renslow complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alstown and similar soils: 45 percent
Renslow, cemented substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silt loam
18 to 49 inches; silt loam
49 to 60 inches; cemented material

Dissimilar Minor Components

- Kester soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

18—Alstown-Renslow complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Alstown and similar soils: 45 percent
Renslow, cemented substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silt loam
18 to 49 inches; silt loam
49 to 60 inches; cemented material

Dissimilar Minor Components

- Kester soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

19—Aquolls, nearly level

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 3,200 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Aquolls and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Aquolls

Landscape position
Landform: Drainageways of plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Recent alluvium over older alluvium, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Frequent (see Water Features table)
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: At the surface to a depth of about 12 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: WET MEADOW 9-15 PZ (R008XY601WA)

Typical profile
0 to 28 inches; silt loam
28 to 37 inches; silt loam
37 to 49 inches; silt loam
49 to 60 inches; clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Leahy soils (3 percent)
- Logy soils (3 percent)
- Elvedere soils (2 percent)
- Xerofluvents (2 percent)

Major Use

Livestock grazing

20—Aquolls-Halaquepts complex, nearly level

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 3,200 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Aquolls and similar soils: 50 percent
Halaquepts, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Aquolls

Landscape position
Landform: Drainageways of plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Recent alluvium over older alluvium, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Very poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Frequent (see Water Features table)
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: At the surface to a depth of about 12 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: WET MEADOW 9-15 PZ (R008XY601WA)

Typical profile
0 to 28 inches; silt loam
28 to 37 inches; silt loam
37 to 49 inches; silt loam
49 to 60 inches; clay loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Depressions and drainageways of plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over older alluvium, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented fine sandy loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Elvedere soils (3 percent)
- Cachebutte soils (2 percent)
- DelRio soils (2 percent)
- Nemire soils (2 percent)
- Alecanyon soils (1 percent)

Major Use

Livestock grazing

21—Argabak very cobbly loam, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 3,500 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Argabak and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated and nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils, steeper sloping (3 percent)
- Rock outcrop (3 percent)
- Tagear soils (3 percent)
- Rubble land (2 percent)
- Toler soils (1 percent)
- Touhey soils (1 percent)
- Winblow soils (1 percent)
- Zen soils (1 percent)

Major Use

Livestock grazing

22—Argabak-Badge complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Argabak and similar soils: 60 percent
Badge and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Badge Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

23—Argabak-Camaspatch-Badge complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Argabak and similar soils: 30 percent
Camaspatch and similar soils: 30 percent
Badge and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 45 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Characteristics of Badge Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Rubble land (5 percent)
- Kiakus soils (3 percent)
- Stemilt soils (2 percent)

Major Use

Livestock grazing

24—Argabak-Haploxerolls-Siweeka complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,100 to 2,900 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Argabak and similar soils: 30 percent
Haploxerolls, wet, and similar soils: 30 percent
Siweeka, bedrock substratum, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Characteristics of Haploxerolls, Wet

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 18 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: SEMIWET MEADOW 9-15 PZ (R008XY602WA)

Typical profile
0 to 16 inches; fine sandy loam
16 to 25 inches; very fine sandy loam
25 to 41 inches; ashy loamy sand
41 to 60 inches; ashy sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 3 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (5 percent)
- Brazlan soils (2 percent)
- Dezellem soils (2 percent)
- Lickskillet soils (2 percent)
- Rock outcrop (2 percent)
- Rubble land (2 percent)

Major Use

Livestock grazing

25—Argabak-Horseflat complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Argabak and similar soils: 45 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 30 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Rubble land (5 percent)
- Tagear soils (3 percent)
- Touhey soils (3 percent)
- Winblow soils (2 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

26—Argabak-Horseflat-Toler complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Argabak and similar soils: 40 percent
Horseflat and similar soils: 25 percent
Toler and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Characteristics of Toler Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)
- Aquolls (5 percent)

Major Use

Livestock grazing

27—Argabak-Horseflat-Zen complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Argabak and similar soils: 40 percent
Horseflat and similar soils: 25 percent
Zen and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam

27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)
- Aquolls (5 percent)

Major Use

Livestock grazing

28—Argabak-Morrow complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Argabak and similar soils: 60 percent
Morrow and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA) (fig. 5)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Morrow Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 0 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA) (fig. 5)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Camaspatch soils (10 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing



Figure 5.—Area of Argabak-Morrow complex, 0 to 30 percent slopes. Stiff sagebrush is on the Argabak soil in foreground, and big sagebrush is on the Morrow soil on mounds in background.

29—Argabak-Nemire-Siweeka complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Argabak and similar soils: 30 percent
Nemire, moist, and similar soils: 30 percent
Siweeka, bedrock substratum, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Characteristics of Nemire Soil, Moist

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 3 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 27 inches; gravelly ashy fine sandy loam
27 to 39 inches; gravelly sandy loam
39 to 43 inches; cemented material
43 to 47 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (7 percent)
- Grinrod soils (3 percent)
- Lickskillet soils (3 percent)
- Rock outcrop (2 percent)

Major Use

Livestock grazing

30—Argabak-Rock outcrop complex, 0 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 3,500 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Argabak and similar soils: 60 percent
Rock outcrop: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated and nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 35 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Rubble land (5 percent)
- Aquolls (2 percent)
- Tagear soils (2 percent)
- Touhey soils (2 percent)

- Winblow soils (2 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

31—Argabak-Tagear-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,400 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Argabak and similar soils: 50 percent
Tagear, bedrock substratum, and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Characteristics of Tagear Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 19 inches; ashy fine sandy loam
19 to 31 inches; ashy fine sandy loam
31 to 44 inches; fine sandy loam
44 to 58 inches; cemented loamy sand
58 to 68 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)

Major Use

Livestock grazing

32—Argabak-Timentwa-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Argabak and similar soils: 45 percent
Timentwa, bedrock substratum, and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Characteristics of Timentwa Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 50 to 65 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 22 inches; ashy loam
22 to 37 inches; gravelly fine sandy loam
37 to 50 inches; gravelly fine sandy loam
50 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Aquolls (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

33—Argabak-Timentwa-Rock outcrop complex, warm, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Argabak and similar soils: 45 percent
Timentwa, bedrock substratum, and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Characteristics of Timentwa Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 50 to 65 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 24 inches; ashy fine sandy loam
24 to 50 inches; sandy loam
50 to 52 inches; cemented sandy loam
52 to 60 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Aquolls (5 percent)
- Heytou soils (5 percent)
- Stubblefield soils (5 percent)

Major Use

Livestock grazing

34—Argabak-Winblow-Rock outcrop complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,350 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Argabak and similar soils: 45 percent
Winblow and similar soils: 25 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Characteristics of Winblow Soil

Landscape position
Landform: Mounds and depressions of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 10 inches; ashy fine sandy loam
10 to 39 inches; ashy fine sandy loam
39 to 49 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Aquolls (5 percent)
- Corbaley soils (3 percent)
- Horseflat soils (2 percent)

Major Use

Livestock grazing

35—Badge very cobbly silt loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Badge and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Badge Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Argabak soils (10 percent)
- Morrow soils (5 percent)
- Van Nostern soils (5 percent)

Major Use

Livestock grazing

36—Badge very cobbly silt loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 4,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Badge and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Badge Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Argabak soils (5 percent)
- Camaspatch soils (5 percent)
- Dougville soils (5 percent)

Major Use

Livestock grazing

37—Badge-Bakeoven complex, 25 to 55 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 13 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Badge and similar soils: 45 percent
Bakeoven and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Badge Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 25 to 55 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 9 inches; cobbly loam
9 to 16 inches; very cobbly loam
16 to 33 inches; very cobbly loam
33 to 60 inches; very gravelly loam

Characteristics of Bakeoven Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 25 to 55 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very gravelly loam
7 to 17 inches; unweathered bedrock

Dissimilar Minor Components

- Rubble land (10 percent)
- Van Nostern soils (10 percent)

Major Use

Livestock grazing

38—Badge-Dougville complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Badge and similar soils: 40 percent
Dougville, cemented substratum, and similar soils: 40 percent
Dissimilar minor components: 20 percent

Characteristics of Badge Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 22 inches; ashy fine sandy loam
22 to 38 inches; ashy fine sandy loam
38 to 46 inches; silt loam
46 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Rock outcrop (5 percent)
- Rubble land (5 percent)
- Watco soils (5 percent)

Major Use

Livestock grazing

39—Badge-Stemilt complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 2,000 to 3,600 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 80 to 120 days

Map Unit Composition

Badge and similar soils: 60 percent
Stemilt and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Badge Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: Pinus ponderosa/Festuca idahoensis (F008XY201WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 24 inches; cobbly silt loam
24 to 60 inches; very cobbly silt loam

Characteristics of Stemilt Soil

Landscape position
Landform: Draws and depressions on scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 10 inches; stony ashy loam
10 to 20 inches; cobbly ashy loam
20 to 38 inches; extremely cobbly clay loam
38 to 60 inches; very cobbly clay loam

Dissimilar Minor Components

- Dougville soils (3 percent)
- Rubble land (3 percent)
- Cordy soils (2 percent)
- Rock outcrop (2 percent)

Major Uses

Livestock grazing and forestry

40—Badge-Stemilt complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 2,000 to 3,600 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 80 to 120 days

Map Unit Composition

Badge and similar soils: 50 percent
Stemilt and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Badge Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 24 inches; cobbly silt loam
24 to 60 inches; extremely cobbly clay loam

Characteristics of Stemilt Soil

Landscape position
Landform: Draws and depressions on scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 10 inches; stony ashy loam
10 to 20 inches; cobbly ashy loam
20 to 38 inches; extremely cobbly clay loam
38 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components

- Dougville soils (3 percent)
- Rubble land (3 percent)
- Cordy soils (2 percent)
- Rock outcrop (2 percent)

Major Uses

Livestock grazing and forestry

41—Bagdad silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Bagdad and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Bagdad Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 10 inches; silt loam
10 to 14 inches; silt loam
14 to 24 inches; silt loam
24 to 40 inches; silt loam
40 to 60 inches; silt loam

Dissimilar Minor Components

- Morrow soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

42—Bagdad silt loam, cemented substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Bagdad and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Bagdad Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 13 inches; silt loam
13 to 42 inches; silt loam
42 to 58 inches; silt loam
58 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Bagdad soils, steeper sloping (10 percent)
- Morrow soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

43—Bagdad silt loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Bagdad and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Bagdad Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; silt loam
8 to 13 inches; silt loam
13 to 42 inches; silt loam
42 to 58 inches; silt loam
58 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Bagdad soils, steeper sloping (10 percent)
- Dougville soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

44—Bakeoven very cobbly loam, 0 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,500 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Bakeoven Soil

Landscape position
Landform: Nonglaciated and glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 35 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very gravelly loam
7 to 17 inches; unweathered bedrock

Dissimilar Minor Components

- Lickskillet soils (10 percent)
- Zen soils (5 percent)

Major Use

Livestock grazing

45—Bakeoven-Lickskillet-Zen complex, 5 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 30 percent
Lickskillet and similar soils: 25 percent
Zen and similar soils: 25 percent
Dissimilar minor components: 20 percent

Characteristics of Bakeoven Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very gravelly loam
7 to 17 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 15 inches; very gravelly loam
15 to 19 inches; unweathered bedrock

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 24 inches; silt loam
24 to 28 inches; silt loam
28 to 38 inches; unweathered bedrock

Dissimilar Minor Components

- Ralls soils (10 percent)
- Renslow soils (10 percent)

Major Use

Livestock grazing

46—Bakeoven-Roloff complex, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 50 percent
Roloff and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Bakeoven Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 25 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very gravelly loam
7 to 17 inches; unweathered bedrock

Characteristics of Roloff Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 0 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; silt loam
11 to 17 inches; silt loam
17 to 29 inches; silt loam
29 to 33 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)
- Aquolls (5 percent)
- Strat soils (5 percent)

Major Use

Livestock grazing

47—Bakeoven-Touhey complex, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Bakeoven and similar soils: 50 percent
Touhey and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Bakeoven Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 25 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very gravelly loam
7 to 17 inches; unweathered bedrock

Characteristics of Touhey Soil

Landscape position
Landform: Mounds on till plains of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 25 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy very fine sandy loam
15 to 27 inches; gravelly fine sandy loam
27 to 38 inches; gravelly sandy loam
38 to 40 inches; cemented gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Heytou soils (3 percent)
- Rock outcrop (3 percent)
- Tagear soils (3 percent)
- Timentwa soils (3 percent)
- Aquolls (2 percent)
- Stubblefield soils (1 percent)

Major Use

Livestock grazing

48—Beca ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Beca and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Beca Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy fine sandy loam

23 to 31 inches; silt loam
31 to 38 inches; gravelly silt loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Beca soils, steeper sloping (5 percent)
- Camaspatch soils (5 percent)
- Dougville soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

49—Beca ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Beca and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Beca Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy fine sandy loam
23 to 31 inches; silt loam
31 to 38 inches; gravelly silt loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Beca soils, steeper sloping (5 percent)
- Camaspatch soils (5 percent)
- Dougville soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

50—Beca ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Beca and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Beca Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy fine sandy loam
23 to 31 inches; silt loam
31 to 38 inches; gravelly silt loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Beca soils, steeper sloping (5 percent)
- Camaspatch soils (5 percent)

- Dougville soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

51—Beca-Camaspatch complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Beca and similar soils: 45 percent
Camaspatch and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Beca Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy fine sandy loam
23 to 31 inches; silt loam
31 to 38 inches; gravelly silt loam
38 to 42 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (10 percent)
- Norax soils (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

52—Beca-Dougville-Slickear complex, 15 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Beca and similar soils: 30 percent
Dougville, cemented substratum, and similar soils: 25 percent
Slickear and similar soils: 25 percent
Dissimilar minor components: 20 percent

Characteristics of Beca Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt

Slope range: 15 to 40 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy fine sandy loam
23 to 31 inches; silt loam
31 to 38 inches; gravelly silt loam
38 to 42 inches; unweathered bedrock

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 15 to 40 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Characteristics of Slickear Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 15 to 40 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 22 inches; ashy fine sandy loam
22 to 46 inches; silty clay loam
46 to 50 inches; cemented material
50 to 55 inches; stratified cemented material ranging to silt loam
55 to 59 inches; unweathered bedrock

Dissimilar Minor Components

- Camaspatch soils (10 percent)
- Nemire soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

53—Benwy silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt

Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Dissimilar Minor Components

- Zen soils (10 percent)
- Benwy soils, steeper sloping (5 percent)
- Selah soils (3 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

54—Benwy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 8 to 15 percent

Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Dissimilar Minor Components

- Zen soils (10 percent)
- Benwy soils, steeper sloping (5 percent)
- Selah soils (3 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

55—Benwy-Alstown complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 45 percent
Alstown and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 0 to 8 percent

Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Kester soils (5 percent)
- Selah soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

56—Benwy-Alstown complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 45 percent
Alstown and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Selah soils (10 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

57—Benwy-Selah-Alstown complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 35 percent
Selah and similar soils: 25 percent
Alstown and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt

Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Characteristics of Selah Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 23 inches; silt loam
23 to 31 inches; silt loam
31 to 35 inches; cemented material
35 to 40 inches; stratified cemented material ranging to silt loam
40 to 44 inches; unweathered bedrock

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Horseflat soils (5 percent)
- Kester soils (5 percent)
- Willis soils (5 percent)
- Zen soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

58—Benwy-Selah-Alstown complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 35 percent
Selah and similar soils: 25 percent

Alstown and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Characteristics of Selah Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 23 inches; silt loam
23 to 31 inches; silt loam
31 to 35 inches; cemented material
35 to 40 inches; stratified cemented material ranging to silt loam
40 to 44 inches; unweathered bedrock

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Kester soils (10 percent)
- Willis soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

59—Benwy-Selah-Alstown complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Benwy and similar soils: 40 percent
Selah and similar soils: 20 percent
Alstown and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Characteristics of Selah Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 23 inches; silt loam
23 to 31 inches; silt loam
31 to 35 inches; cemented material
35 to 40 inches; stratified cemented material ranging to silt loam
40 to 44 inches; unweathered bedrock

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Dissimilar Minor Components

- Kester soils (10 percent)
- Willis soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

60—Beverly cobbly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,200 feet
Mean annual precipitation: 8 to 9 inches

Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Beverly and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Beverly Soil

Landscape position
Landform: Fans and low river terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Recent sandy and gravelly alluvium
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 3e
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 5 inches; cobbly fine sandy loam
5 to 20 inches; gravelly fine sandy loam
20 to 60 inches; extremely gravelly loamy coarse sand

Dissimilar Minor Components

- Cashmont soils (10 percent)
- Cashmere soils (3 percent)
- Quincy soils (2 percent)

Major Use

Irrigated cropland

61—Brays ashy fine sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Brays and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Brays Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 35 inches; extremely cobbly ashy fine sandy loam
35 to 45 inches; unweathered bedrock

Dissimilar Minor Components

- Chelan soils (8 percent)
- Entiat soils (4 percent)
- Brays soils, steeper sloping (3 percent)

Major Uses

Irrigated cropland and livestock grazing

62—Brays-Entiat complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Brays and similar soils: 55 percent
Entiat and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Brays Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 35 inches; extremely cobbly ashy fine sandy loam
35 to 45 inches; unweathered bedrock

Characteristics of Entiat Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; gravelly fine sandy loam
6 to 11 inches; very gravelly loam
11 to 17 inches; very gravelly loam
17 to 27 inches; weathered bedrock

Dissimilar Minor Components

- Chelan soils (10 percent)

Major Uses

Irrigated cropland and livestock grazing

63—Brays-Entiat-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Brays and similar soils: 40 percent
Entiat and similar soils: 35 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Brays Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 35 inches; extremely cobbly ashy fine sandy loam
35 to 45 inches; unweathered bedrock

Characteristics of Entiat Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 65 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; gravelly fine sandy loam
6 to 11 inches; very gravelly loam
11 to 17 inches; very gravelly loam
17 to 27 inches; weathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Chelan soils (5 percent)
- Roosevelt soils (5 percent)

Major Use

Livestock grazing

64—Broadax silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,300 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 16 inches; silt loam
16 to 26 inches; silt loam
26 to 42 inches; silt loam
42 to 54 inches; silt loam
54 to 60 inches; silty clay loam

Dissimilar Minor Components

- Broadax soils, steeper sloping (5 percent)
- McCue soils (5 percent)
- Morrow soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

65—Broadax silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,300 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 16 inches; silt loam
16 to 26 inches; silt loam
26 to 42 inches; silt loam
42 to 54 inches; silt loam
54 to 60 inches; silty clay loam

Dissimilar Minor Components

- Broadax soils, steeper sloping (5 percent)
- McCue soils (5 percent)
- Spofford soils (5 percent)
- Morrow soils (3 percent)
- Jordy soils (1 percent)
- Van Nostern soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

66—Broadax silt loam, cemented substratum, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Dissimilar Minor Components

- Badgermont soils (5 percent)
- Broadax soils, steeper sloping (5 percent)
- McCue soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

67—Broadax silt loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Dissimilar Minor Components

- Broadax soils, steeper sloping (5 percent)
- McCue soils (5 percent)
- Morrow soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

68—Broadax-Morrow-Spofford complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax, bedrock substratum, and similar soils: 35 percent
Morrow and similar soils: 25 percent
Spofford and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 13 inches; silt loam
13 to 31 inches; silt loam
31 to 47 inches; silt loam
47 to 57 inches; unweathered bedrock

Characteristics of Morrow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Characteristics of Spofford Soil

Landscape position
Landform: Circular areas of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 60 inches to moderately cemented duripan; 50 to 60 inches to lithic bedrock
Drainage class: Moderately well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 10
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; silt loam
9 to 21 inches; silt loam
21 to 44 inches; silt loam
44 to 53 inches; cemented material
53 to 58 inches; silt loam
58 to 62 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (10 percent)
- McCue soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

69—Broadax-Morrow-Spofford complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax, bedrock substratum, and similar soils: 35 percent
Morrow and similar soils: 25 percent
Spofford and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 9 inches; silt loam
9 to 13 inches; silt loam
13 to 31 inches; silt loam
31 to 47 inches; silt loam
47 to 57 inches; unweathered bedrock

Characteristics of Morrow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Characteristics of Spofford Soil

Landscape position
Landform: Circular areas of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to moderately cemented duripan; 50 to 60 inches to lithic bedrock

Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 10
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; silt loam
9 to 21 inches; silt loam
21 to 44 inches; silt loam
44 to 53 inches; cemented material
53 to 58 inches; silt loam
58 to 62 inches; unweathered bedrock

Dissimilar Minor Components

- McCue soils (10 percent)
- Argabak soils (5 percent)
- Camaspatch soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

70—Broadax-Titchenal complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Broadax, cemented substratum, and similar soils: 45 percent
Titchenal and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Characteristics of Titchenal Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 57 inches; silt loam
57 to 60 inches; cemented material

Dissimilar Minor Components

- McCue soils (5 percent)
- Morrow soils (5 percent)
- Spofford soils (5 percent)
- Van Nostern soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

71—Burbank loamy fine sand, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 650 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Burbank and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Burbank Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Eolian sand over mixed alluvium and glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 25 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Land capability subclass (irrigated): 4s
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 6 inches; loamy fine sand
6 to 20 inches; gravelly loamy sand
20 to 60 inches; very cobbly coarse sand

Dissimilar Minor Components

- Burbank soils, steeper sloping (5 percent)
- Quincy soils (5 percent)
- Pogue soils (3 percent)
- Magallon soils (2 percent)

Major Use

Irrigated cropland

72—Burbank loamy fine sand, 8 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 650 to 1,200 feet

Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Burbank and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Burbank Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian sand over mixed alluvium and glacial outwash
Slope range: 8 to 25 percent
Depth to restrictive feature: 20 to 25 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 6 inches; loamy fine sand
6 to 20 inches; gravelly loamy sand
20 to 60 inches; very cobbly coarse sand

Dissimilar Minor Components

- Quincy soils (8 percent)
- Pogue soils (3 percent)
- Aeneas soils (2 percent)
- Magallon soils (2 percent)

Major Use

Irrigated cropland

73—Burch fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Burch and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Burch Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Mixed alluvium
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 38 inches; loam
38 to 60 inches; loam

Dissimilar Minor Components

- Burch soils, steeper sloping (10 percent)
- Cashmont soils (5 percent)

Major Use

Irrigated cropland

74—Burch loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Burch and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Burch Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Mixed alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3c
Land capability subclass (irrigated): 2e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; loam
10 to 30 inches; loam
30 to 60 inches; loam

Dissimilar Minor Components

- Burch soils, steeper sloping (5 percent)
- Cashmont soils (5 percent)
- Ellisforde soils (5 percent)

Major Use

Irrigated cropland

75—Burch loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Burch and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Burch Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Mixed alluvium
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; loam
10 to 30 inches; loam
30 to 60 inches; loam

Dissimilar Minor Components

- Burch soils, steeper sloping (5 percent)
- Cashmont soils (5 percent)
- Ellisforde soils (5 percent)

Major Use

Irrigated cropland

76—Cachebutte ashy sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Cachebutte and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cachebutte Soil

Landscape position
Landform: Kames, terraces, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam
22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very cobbly sandy loam
34 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Cachebutte soils, steeper sloping (4 percent)
- Nemire soils (4 percent)
- Aquolls (2 percent)
- Brazlan soils (2 percent)
- Timentwa soils (2 percent)
- Siweeka soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

77—Cachebutte-Alecanyon-Haploxerolls complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Cachebutte and similar soils: 50 percent
Alecanyon and similar soils: 25 percent
Haploxerolls, wet, and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Cachebutte Soil

Landscape position
Landform: Terraces, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam
22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very gravelly fine sandy loam
34 to 60 inches; extremely cobbly coarse sand

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Characteristics of Haploxerolls, Wet

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 18 to 60 inches (see Water Features table)

Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: SEMIWET MEADOW 9-15 PZ (R008XY602WA)

Typical profile
0 to 16 inches; fine sandy loam
16 to 25 inches; very fine sandy loam
25 to 41 inches; ashy loamy sand
41 to 60 inches; ashy sandy loam

Dissimilar Minor Components

- Aquolls (4 percent)
- Ewall soils (2 percent)
- Brazlan soils (1 percent)
- Dezellem soils (1 percent)
- Siweeka soils (1 percent)
- Timentwa soils (1 percent)

Major Use

Livestock grazing

78—Cachebutte-Nemire-Alecanyon complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Cachebutte and similar soils: 35 percent
Nemire and similar soils: 30 percent
Alecanyon and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Cachebutte Soil

Landscape position
Landform: Kames, terraces, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 22 inches; ashy sandy loam
22 to 28 inches; gravelly ashy sandy loam
28 to 34 inches; very gravelly fine sandy loam
34 to 60 inches; extremely cobbly coarse sand

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 24 inches; ashy fine sandy loam
24 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 12 inches; very cobbly ashy fine sandy loam
12 to 31 inches; extremely gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Aquolls (5 percent)
- Brazlan soils (2 percent)
- Dezellem soils (2 percent)
- Ewall soils (2 percent)
- Siweeka soils (2 percent)
- Timentwa soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

79—Cashmere fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Glaciofluvial deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3c
Land capability subclass (irrigated): 2e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 11 inches; fine sandy loam
11 to 24 inches; fine sandy loam
24 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Magallon soils (7 percent)
- Cashmere soils, steeper sloping (5 percent)
- Pogue soils (3 percent)

Major Uses

Nonirrigated and irrigated cropland

80—Cashmere fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Glaciofluvial deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 11 inches; fine sandy loam
11 to 24 inches; fine sandy loam
24 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Cashmere soils, steeper sloping (5 percent)
- Magallon soils (5 percent)
- Pogue soils (3 percent)
- Quincy soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland

81—Cashmere fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 11 inches; fine sandy loam
11 to 24 inches; fine sandy loam
24 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Quincy soils (5 percent)
- Pogue soils (4 percent)
- Cashmere soils, steeper sloping (3 percent)
- Magallon soils (3 percent)

Major Uses

Nonirrigated and irrigated cropland

82—Cashmere fine sandy loam, cemented substratum, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 900 to 1,600 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Glaciofluvial deposits over a duripan
Slope range: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3c
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 44 inches; very fine sandy loam
44 to 52 inches; very fine sandy loam
52 to 60 inches; cemented very fine sandy loam

Dissimilar Minor Components

- Cashmere soils, steeper sloping (5 percent)

- Ritzville soils (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

83—Cashmere fine sandy loam, cemented substratum, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 900 to 1,600 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Glaciofluvial deposits over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 44 inches; very fine sandy loam
44 to 52 inches; very fine sandy loam
52 to 60 inches; cemented very fine sandy loam

Dissimilar Minor Components

- Cashmere soils, steeper sloping (5 percent)
- Ritzville soils (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

84—Cashmere fine sandy loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 900 to 1,600 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Cashmere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmere Soil

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 44 inches; very fine sandy loam
44 to 52 inches; very fine sandy loam
52 to 60 inches; cemented very fine sandy loam

Dissimilar Minor Components

- Cashmere soils, steeper sloping (5 percent)
- Ritzville soils (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

85—Cashmere-Willis complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 2,000 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Cashmere, cemented substratum, and similar soils: 60 percent
Willis and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Cashmere Soil, Cemented Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 44 inches; very fine sandy loam
44 to 52 inches; very fine sandy loam
52 to 60 inches; cemented very fine sandy loam

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam
17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Ritzville soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

86—Cashmere-Willis complex, 30 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 2,000 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Cashmere, cemented substratum, and similar soils: 60 percent
Willis and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Cashmere Soil, Cemented Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits over a duripan
Slope range: 30 to 45 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 44 inches; very fine sandy loam
44 to 52 inches; very fine sandy loam
52 to 60 inches; cemented very fine sandy loam

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 30 to 45 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam
17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Ritzville soils (10 percent)

Major Use

Livestock grazing

87—Cashmont gravelly sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmont Soil

Landscape position
Landform: Fans on terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; gravelly sandy loam
10 to 36 inches; gravelly fine sandy loam
36 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

- Cashmont soils, steeper sloping (5 percent)
- Logy soils (5 percent)
- Pogue soils (3 percent)
- Quincy soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland

88—Cashmont gravelly sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmont Soil

Landscape position
Landform: Fans on terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; gravelly sandy loam
10 to 36 inches; gravelly fine sandy loam
36 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

- Cashmont soils, steeper sloping (5 percent)
- Logy soils (5 percent)
- Pogue soils (3 percent)
- Quincy soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland

89—Cashmont sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmont Soil

Landscape position
Landform: Fans on terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 2e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; sandy loam
10 to 24 inches; gravelly fine sandy loam
24 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

- Cashmont soils, steeper sloping (5 percent)
- Pogue soils (5 percent)
- Quincy soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

90—Cashmont sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmont Soil

Landscape position
Landform: Fans on terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; sandy loam
10 to 24 inches; gravelly fine sandy loam
24 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

- Cashmont soils, steeper sloping (5 percent)
- Pogue soils (5 percent)
- Quincy soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

91—Cashmont sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Cashmont and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Cashmont Soil

Landscape position
Landform: Fans on terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Gravelly alluvium
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; sandy loam
10 to 24 inches; gravelly fine sandy loam
24 to 60 inches; gravelly sandy loam

Dissimilar Minor Components

- Quincy soils (10 percent)
- Cashmont soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland

92—Chelan ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,000 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 180 days

Map Unit Composition

Chelan, cemented substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Cemented Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 40 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 42 inches; ashy fine sandy loam
42 to 46 inches; cemented very cobbly sandy loam
46 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils, steeper sloping (5 percent)
- Peshastin soils (5 percent)
- Wellsdam soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

93—Chelan ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,000 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 180 days

Map Unit Composition

Chelan, cemented substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Cemented Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 40 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 42 inches; ashy fine sandy loam

42 to 46 inches; cemented very cobbly sandy loam
46 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils, steeper sloping (5 percent)
- Peshastin soils (5 percent)
- Wellsdam soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

94—Chelan ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,000 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 180 days

Map Unit Composition

Chelan, cemented substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Cemented Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 40 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 42 inches; ashy fine sandy loam
42 to 46 inches; cemented very cobbly sandy loam
46 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils, steeper sloping (5 percent)
- Peshastin soils (5 percent)
- Wellsdam soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

95—Chelan ashy fine sandy loam, bedrock substratum, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,000 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 180 days

Map Unit Composition

Chelan, bedrock substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Bedrock Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy very fine sandy loam
25 to 50 inches; ashy fine sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Wellsdam soils (10 percent)
- Chelan soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

96—Chelan ashy fine sandy loam, gravelly substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Chelan, gravelly substratum, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Gravelly Substratum

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy very fine sandy loam
25 to 46 inches; ashy fine sandy loam
46 to 60 inches; extremely cobbly sand

Dissimilar Minor Components

- Wellsdam soils (10 percent)
- Chelan soils, steeper sloping (5 percent)

Major Use

Irrigated cropland

97—Chelan ashy fine sandy loam, gravelly substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Chelan, very deep, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Very Deep

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy very fine sandy loam
25 to 46 inches; ashy fine sandy loam
46 to 60 inches; extremely cobbly sand

Dissimilar Minor Components

- Wellsdam soils (10 percent)
- Chelan soils, steeper sloping (5 percent)

Major Use

Irrigated cropland

98—Chelan ashy fine sandy loam, gravelly substratum, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Chelan, very deep, and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Chelan Soil, Very Deep

Landscape position
Landform: High terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy very fine sandy loam
25 to 46 inches; fine sandy loam
46 to 60 inches; extremely cobbly sand

Dissimilar Minor Components

- Wellsdam soils (10 percent)
- Chelan soils, steeper sloping (5 percent)

Major Uses

Irrigated cropland and livestock grazing

99—Cheviot-Ralls-Dougville complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Cheviot and similar soils: 40 percent
Ralls and similar soils: 30 percent
Dougville and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Cheviot Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly loam
10 to 32 inches; very cobbly silt loam
32 to 60 inches; extremely cobbly loam

Characteristics of Ralls Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly silt loam
10 to 20 inches; gravelly clay loam
20 to 32 inches; gravelly silt loam
32 to 60 inches; very gravelly silt loam

Characteristics of Dougville Soil

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 27 inches; ashy fine sandy loam
27 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Grinrod soils (4 percent)
- Rock outcrop (3 percent)
- Rubble land (3 percent)

Major Use

Livestock grazing

100—Cheviot-Ralls-Grinrod complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Cheviot and similar soils: 40 percent
Ralls and similar soils: 30 percent
Grinrod and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Cheviot Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly loam
10 to 32 inches; very cobbly silt loam
32 to 60 inches; extremely cobbly loam

Characteristics of Ralls Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly silt loam
10 to 20 inches; gravelly clay loam
20 to 32 inches; gravelly silt loam
32 to 60 inches; very gravelly silt loam

Characteristics of Grinrod Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 10 inches; very cobbly loam
10 to 22 inches; extremely cobbly loam
22 to 32 inches; unweathered bedrock

Dissimilar Minor Components

- Horseflat soils (3 percent)
- Rock outcrop (3 percent)
- Logy soils (2 percent)
- Rubble land (2 percent)

Major Use

Livestock grazing

101—Cheviot-Ralls-Rubble land complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Cheviot and similar soils: 40 percent
Ralls and similar soils: 30 percent
Rubble land: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Cheviot Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly loam
10 to 32 inches; very cobbly silt loam
32 to 60 inches; extremely cobbly loam

Characteristics of Ralls Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly silt loam
10 to 20 inches; gravelly clay loam
20 to 32 inches; gravelly silt loam
32 to 60 inches; very gravelly silt loam

Characteristics of Rubble Land

Description of areas: Colluvial deposits of gravel, cobbles, stones, and boulders typically underlain by basalt below a depth of 40 inches
Kind of rock fragments: Typically basalt
Soil material between voids: Little or none
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Argabak soils (2 percent)
- Grinrod soils (2 percent)
- Rock outcrop (2 percent)
- Toler soils (2 percent)
- Winblow soils (2 percent)

Major Use

Livestock grazing

102—Conconully complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully and similar soils: 45 percent
Conconully, bedrock substratum, and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till
Slope range: 0 to 8 percent
Depth to restrictive feature: 26 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy sandy loam
7 to 20 inches; ashy sandy loam
20 to 32 inches; cobbly sandy loam
32 to 60 inches; cobbly coarse sandy loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 0 to 8 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Aquolls (5 percent)
- Ginnis soils (3 percent)
- Swakane soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

103—Conconully complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully and similar soils: 45 percent
Conconully, bedrock substratum, and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till
Slope range: 8 to 15 percent
Depth to restrictive feature: 26 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy sandy loam
7 to 20 inches; ashy sandy loam
20 to 32 inches; cobbly sandy loam
32 to 60 inches; cobbly coarse sandy loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 8 to 15 percent

Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

104—Conconully complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully and similar soils: 45 percent
Conconully, bedrock substratum, and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till
Slope range: 15 to 30 percent
Depth to restrictive feature: 26 to 40 inches to dense material

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy sandy loam
7 to 20 inches; ashy sandy loam
20 to 32 inches; cobbly sandy loam
32 to 60 inches; cobbly coarse sandy loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 15 to 30 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

105—Conconully-Swakane-Rock outcrop complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 45 percent
Swakane and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Mounds on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 0 to 15 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Swakane Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 0 to 15 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 13 inches; very gravelly loam
13 to 18 inches; extremely gravelly sandy loam
18 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Aquolls (5 percent)
- Wagberg soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

106—Conconully-Swakane-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 45 percent
Swakane and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Mounds on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 15 to 30 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Swakane Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 13 inches; very gravelly loam
13 to 18 inches; extremely gravelly sandy loam
18 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Wagberg soils (5 percent)

Major Use

Livestock grazing

107—Conconully-Swakane-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 45 percent
Swakane and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 5 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 30 to 60 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam

12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Swakane Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 13 inches; very gravelly loam
13 to 18 inches; very gravelly sandy loam
18 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Wagberg soils (5 percent)

Major Use

Livestock grazing

108—Conconully-Wagberg complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 65 percent

Wagberg and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 3 to 8 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Wagberg Soil

Landscape position
Landform: Mounds on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very cobbly ashy sandy loam
9 to 26 inches; very cobbly coarse sandy loam
26 to 48 inches; very cobbly coarse sandy loam
48 to 58 inches; unweathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

109—Conconully-Wagberg complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 65 percent
Wagberg and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 8 to 15 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Wagberg Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very cobbly ashy sandy loam
9 to 26 inches; very cobbly coarse sandy loam
26 to 48 inches; very cobbly coarse sandy loam
48 to 58 inches; unweathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

110—Conconully-Wagberg complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 60 percent
Wagberg and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 15 to 30 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Wagberg Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very cobbly ashy sandy loam
9 to 26 inches; very cobbly coarse sandy loam
26 to 48 inches; very cobbly coarse sandy loam
48 to 58 inches; unweathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

111—Conconully-Wagberg complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Conconully, bedrock substratum, and similar soils: 60 percent
Wagberg and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 30 to 65 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Characteristics of Wagberg Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 30 to 65 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile
0 to 9 inches; very cobbly ashy sandy loam
9 to 26 inches; very cobbly coarse sandy loam
26 to 48 inches; very cobbly coarse sandy loam
48 to 58 inches; unweathered bedrock

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Swakane soils (5 percent)

Major Use

Livestock grazing

112—Corbaley-Kester complex, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Corbaley and similar soils: 60 percent
Kester and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Corbaley Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt
Slope range: 0 to 5 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 9 inches; gravelly ashy fine sandy loam
9 to 16 inches; very gravelly ashy fine sandy loam
16 to 26 inches; unweathered bedrock

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 25 inches; ashy sandy loam
25 to 35 inches; ashy sandy loam
35 to 45 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (5 percent)
- Slusser soils (5 percent)
- Renslow soils (4 percent)
- Aquolls (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

113—Cordy-Stemilt complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 75 to 120 days

Map Unit Composition

Cordy and similar soils: 50 percent
Stemilt and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Cordy Soil

Landscape position
Landform: Mountains (fig. 6)
Geomorphic position (three-dimensional): Bases



Figure 6.—Douglas fir and ponderosa pine forest in an area of Cordy-Stemilt complex, 3 to 30 percent slopes, on the north slope of Badger Mountain.

Properties and qualities
Parent material: Loess and volcanic ash over older loess
Slope range: 3 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 16 inches; ashy loam
16 to 21 inches; ashy loam
21 to 60 inches; silt loam

Characteristics of Stemilt Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Tops

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 8 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 9 inches; stony ashy loam
9 to 18 inches; cobbly ashy loam
18 to 40 inches; extremely cobbly clay loam
40 to 60 inches; extremely cobbly clay loam

Dissimilar Minor Components

- Leidl soils (4 percent)
- Shinn soils (4 percent)
- Camaspatch soils (2 percent)

Major Uses

Livestock grazing and forestry

114—Dam

Map Unit Composition

Dam: 100 percent

Characteristics of Dam

Description of areas: Concrete structures along the Columbia River
Land capability class: 8

115—Deercut ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Deercut and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Deercut Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy fine sandy loam
10 to 24 inches; silt loam
24 to 28 inches; cemented material
28 to 33 inches; stratified cemented material ranging to silt loam
33 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Benwy soils (5 percent)
- Deercut soils, steeper sloping (5 percent)
- Toler soils (5 percent)
- Slusser soils (3 percent)
- Winblow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

116—Deercut-Aarup-Whiteye complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Deercut and similar soils: 40 percent
Aarup and similar soils: 20 percent
Whiteye and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Deercut Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 3 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy fine sandy loam
10 to 24 inches; silt loam

24 to 28 inches; cemented material
28 to 33 inches; stratified cemented material ranging to silt loam
33 to 37 inches; unweathered bedrock

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 3 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Characteristics of Whiteye Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 3 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 18 inches; silt loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Alsash soils (5 percent)
- Benwy soils (5 percent)
- Selah soils (5 percent)
- Slusser soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

117—Deercut-Aarup-Whiteye complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Deercut and similar soils: 40 percent
Aarup and similar soils: 20 percent
Whiteye and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Deercut Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy fine sandy loam
10 to 24 inches; silt loam
24 to 28 inches; cemented material
28 to 33 inches; stratified cemented material ranging to silt loam
33 to 37 inches; unweathered bedrock

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Characteristics of Whiteye Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 18 inches; silt loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, eroded (5 percent)
- Alsash soils (5 percent)
- Benwy soils (5 percent)
- Slusser soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

118—Deercut-Aarup-Whiteye complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Deercut and similar soils: 40 percent
Aarup and similar soils: 20 percent
Whiteye and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Deercut Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy fine sandy loam
10 to 24 inches; silt loam
24 to 28 inches; cemented material
28 to 33 inches; stratified cemented material ranging to silt loam
33 to 37 inches; unweathered bedrock

Characteristics of Aarup Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy very fine sandy loam
16 to 26 inches; cemented material
26 to 36 inches; unweathered bedrock

Characteristics of Whiteye Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 18 inches; silt loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, eroded (5 percent)
- Alstown soils (5 percent)
- Benwy soils (5 percent)
- Slusser soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

119—DelRio ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

DelRio and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of DelRio Soil

Landscape position
Landform: Depressions and channels of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over sandy glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 44 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 45 inches; ashy fine sandy loam
45 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Sanbee soils (4 percent)
- DelRio soils, steeper sloping (3 percent)
- Aquolls (2 percent)
- Heytou soils (1 percent)
- Skaha soils (1 percent)
- Strat soils (1 percent)
- Tagear soils (1 percent)
- Touhey soils (1 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

120—DelRio ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

DelRio and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of DelRio Soil

Landscape position
Landform: Terraces, kames, and channels of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over sandy glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 44 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 45 inches; ashy fine sandy loam
45 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Strat soils (4 percent)
- Tubspring soils (4 percent)
- Haploxerolls (2 percent)
- Tagear soils (2 percent)
- Touhey soils (2 percent)
- Stubblefield soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

121—Dezellem-Brazlan complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dezellem and similar soils: 50 percent
Brazlan and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Dezellem Soil

Landscape position
Landform: Till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)
- Haploxerolls (5 percent)

Major Use

Livestock grazing

122—Dezellem-Brazlan complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dezellem and similar soils: 55 percent
Brazlan and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Dezellem Soil

Landscape position
Landform: Till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash and glacial till over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (10 percent)

Major Use

Livestock grazing

123—Dezellem-Brazlan complex, 30 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dezellem and similar soils: 50 percent
Brazlan and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Dezellem Soil

Landscape position
Landform: Till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 30 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam

18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash and glacial till over a duripan over basalt
Slope range: 30 to 45 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (10 percent)

Major Use

Livestock grazing

124—Dezellem-Brazlan-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dezellem and similar soils: 50 percent
Brazlan and similar soils: 20 percent

Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Dezellem Soil

Landscape position
Landform: South aspects of till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 20 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Brazlan Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash and glacial till over a duripan over basalt
Slope range: 20 to 50 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly ashy fine sandy loam
8 to 12 inches; very gravelly ashy loam
12 to 20 inches; very gravelly loam
20 to 34 inches; cemented gravelly coarse sandy loam
34 to 38 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Lickskillet soils (8 percent)
- Rubble land (5 percent)
- Haploxerolls (2 percent)

Major Use

Livestock grazing

125—Dezellem-Stubblefield complex, 20 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,900 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Dezellem and similar soils: 50 percent
Stubblefield and similar soils: 45 percent
Dissimilar minor components: 5 percent

Characteristics of Dezellem Soil

Landscape position
Landform: Scarp slopes of till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 20 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 10 inches; very stony ashy fine sandy loam
10 to 20 inches; very gravelly sandy loam
20 to 36 inches; very gravelly sandy loam
36 to 60 inches; very gravelly sandy loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Scarp slopes of till plains of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 20 to 45 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 12 inches; very cobbly fine sandy loam
12 to 22 inches; very cobbly fine sandy loam
22 to 30 inches; very cobbly sandy loam
30 to 41 inches; cemented material
41 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Tagear soils (5 percent)

Major Use

Livestock grazing

126—Dezellem-Timentwa-Rock outcrop complex, 20 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches

Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dezellem and similar soils: 40 percent
Timentwa and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Dezellem Soil

Landscape position
Landform: North aspects of till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 20 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Timentwa Soil

Landscape position
Landform: North aspects of scarps of till plains of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 20 to 70 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 20 inches; ashy loam
20 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Argabak soils (5 percent)
- Badge soils (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

127—Dezellem-Timentwa-Rock outcrop complex, warm, 20 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Dezellem and similar soils: 40 percent
Timentwa and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Dezellem Soil

Landscape position
Landform: Scarps of till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 20 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 10 inches; very stony ashy fine sandy loam
10 to 20 inches; very gravelly sandy loam
20 to 36 inches; very gravelly sandy loam
36 to 60 inches; very gravelly sandy loam

Characteristics of Timentwa Soil

Landscape position
Landform: Scarp slopes of till plains of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 20 to 70 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 33 inches; ashy loam
33 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Grinrod soils (5 percent)
- Haploxerolls (3 percent)
- Rubble land (3 percent)
- Lickskillet soils (2 percent)
- Strat soils (1 percent)
- Tubspring soils (1 percent)

Major Use

Livestock grazing

128—Dinkels-Rock outcrop complex, 35 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 105 to 155 days

Map Unit Composition

Dinkels and similar soils: 70 percent
Rock outcrop: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Dinkels Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 35 to 70 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 18 inches; gravelly ashy loam
18 to 28 inches; gravelly ashy loam
28 to 41 inches; gravelly ashy fine sandy loam
41 to 45 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Pateros soils (5 percent)
- Ralls soils (5 percent)

Major Use

Livestock grazing

129—Dougville ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 27 inches; ashy fine sandy loam
27 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Dougville soils, steeper sloping (10 percent)
- Dutchenry soils (5 percent)
- Norax soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

130—Dougville ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 27 inches; ashy fine sandy loam
27 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Norax soils (10 percent)
- Dougville soils, steeper sloping (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

131—Dougville ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 27 inches; ashy fine sandy loam
27 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Norax soils (10 percent)
- Dougville soils, steeper sloping (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

132—Dougville ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Dougville soils, steeper sloping (5 percent)
- Jordy soils (5 percent)
- Norax soils (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

133—Dougville ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Dougville soils, steeper sloping (5 percent)
- Jordy soils (5 percent)
- Norax soils (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

134—Dougville ashy fine sandy loam, cemented substratum, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Dougville soils, steeper sloping (5 percent)
- Jordy soils (5 percent)
- Norax soils (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

135—Dougville-Badge complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville, cemented substratum, and similar soils: 60 percent
Badge and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: North aspects of scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 30 to 65 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 48 inches; silt loam
48 to 59 inches; silty clay loam
59 to 60 inches; cemented gravelly silt loam

Characteristics of Badge Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam
13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Argabak soils (5 percent)
- Rock outcrop (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

136—Dougville-Farmer complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville, cemented substratum, and similar soils: 45 percent
Farmer, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 19 inches; ashy fine sandy loam
19 to 39 inches; ashy fine sandy loam
39 to 57 inches; silt loam
57 to 60 inches; cemented gravelly silt loam

Characteristics of Farmer Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Broadax soils (5 percent)
- Dutchenry soils (5 percent)
- Nemire soils (5 percent)
- Norax soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

137—Dougville-Farmer-Dutchenry complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville, cemented substratum, and similar soils: 35 percent
Farmer, cemented substratum, and similar soils: 25 percent
Dutchenry and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 19 inches; ashy fine sandy loam
19 to 39 inches; ashy fine sandy loam
39 to 57 inches; silt loam
57 to 60 inches; cemented silt loam

Characteristics of Farmer Soil, Cemented Substratum

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; cemented silt loam

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (5 percent)
- Nemire soils (5 percent)
- Norax soils (5 percent)
- Sevar soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

138—Dougville-Norax-Nemire complex, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dougville, cemented substratum, and similar soils: 35 percent
Norax and similar soils: 25 percent
Nemire and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 0 to 25 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 19 inches; ashy fine sandy loam
19 to 39 inches; ashy fine sandy loam
39 to 57 inches; silt loam
57 to 60 inches; cemented silt loam

Characteristics of Norax Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 5 to 25 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 4 inches; silt loam
4 to 34 inches; silty clay loam
34 to 54 inches; loam
54 to 60 inches; cemented silt loam

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over old alluvium
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 12.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; ashy fine sandy loam
16 to 37 inches; ashy fine sandy loam
37 to 47 inches; ashy fine sandy loam
47 to 60 inches; silt loam

Dissimilar Minor Components

- Dutchenry soils (7 percent)
- McCue soils (7 percent)
- Sevar soils (6 percent)

Major Uses

Nonirrigated cropland and livestock grazing

139—Drysel silt loam, 5 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,600 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 135 to 195 days

Map Unit Composition

Drysel and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Drysel Soil

Landscape position
Landform: Fans of nonglaciated plateaus
Geomorphic position (three-dimensional): Base slopes

Properties and qualities
Parent material: Loess over gravelly colluvium over a duripan over basalt
Slope range: 5 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 8
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 10 inches; silt loam
10 to 17 inches; silt loam
17 to 26 inches; gravelly clay loam
26 to 33 inches; gravelly clay loam
33 to 57 inches; cemented material
57 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Wanapum soils (10 percent)
- Grinrod soils (5 percent)
- Lickskillet soils (3 percent)
- Argabak soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

140—Drysel-Wanapum complex, 5 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,600 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 135 to 195 days

Map Unit Composition

Drysel and similar soils: 50 percent
Wanapum and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Drysel Soil

Landscape position
Landform: Fans of nonglaciated plateaus
Geomorphic position (three-dimensional): Base slopes

Properties and qualities
Parent material: Loess over gravelly colluvium over a duripan over basalt
Slope range: 5 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 8
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 10 inches; silt loam
10 to 17 inches; silt loam
17 to 26 inches; gravelly clay loam
26 to 33 inches; gravelly clay loam
33 to 57 inches; cemented material
57 to 60 inches; unweathered bedrock

Characteristics of Wanapum Soil

Landscape position
Landform: Fans of nonglaciated plateaus
Geomorphic position (three-dimensional): Base slopes

Properties and qualities
Parent material: Gravelly colluvium over a duripan over basalt
Slope range: 5 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 6 inches; cobbly loam
6 to 15 inches; very gravelly loam
15 to 20 inches; cemented material
20 to 30 inches; stratified cemented material ranging to silt loam
30 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Grinrod soils (10 percent)
- Finley soils (5 percent)
- Lickskillet soils (3 percent)
- Argabak soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

141—Durixerolls-Ellisforde-Elvedere complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Durixerolls and similar soils: 35 percent
Ellisforde and similar soils: 35 percent
Elvedere and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Durixerolls

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam
30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Ellisforde Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 18 inches; very fine sandy loam
18 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of Elvedere Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Haploxerolls (3 percent)
- Leahy soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

142—Durixerolls-Ellisforde-Elvedere complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Durixerolls and similar soils: 35 percent
Ellisforde and similar soils: 35 percent
Elvedere and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Durixerolls

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam
30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Ellisforde Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 18 inches; very fine sandy loam
18 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of Elvedere Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Leahy soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

143—Durixerolls-Ellisforde-Elvedere complex, 30 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Durixerolls and similar soils: 35 percent
Ellisforde and similar soils: 35 percent
Elvedere and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Durixerolls

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 30 to 45 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam
30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Ellisforde Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 30 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 18 inches; very fine sandy loam
18 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of Elvedere Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 30 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Leahy soils (5 percent)

Major Use

Livestock grazing

144—Durixerolls-Halaquepts complex, nearly level

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 900 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 190 days

Map Unit Composition

Durixerolls, moist, and similar soils: 50 percent
Halaquepts, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Durixerolls, Moist

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam

30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (10 percent)
- Leahy soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

145—Durixerolls-Halaquepts complex, undulating

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Durixerolls, moist, and similar soils: 50 percent
Halaquepts, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Durixerolls, Moist

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam
30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 3 to 5 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (10 percent)
- Playas (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

146—Durixerolls-Halaquepts complex, nearly level to rolling

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Durixerolls and similar soils: 30 percent
Durixerolls, moist, and similar soils: 25 percent
Halaquepts, cemented substratum, and similar soils: 25 percent
Dissimilar minor components: 20 percent

Characteristics of Durixerolls

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 3.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 21 inches; cobbly loam
21 to 30 inches; cemented cobbly loam
30 to 34 inches; cobbly sandy loam
34 to 60 inches; very gravelly coarse sandy loam

Characteristics of Durixerolls, Moist

Landscape position
Landform: Middle positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 38 inches; fine sandy loam
38 to 45 inches; cemented cobbly loam
45 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 5 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Playas (5 percent)
- Rock outcrop (5 percent)
- Leahy soils (3 percent)
- Elvedere soils (2 percent)

Major Use

Livestock grazing

147—Durixerolls-Halaquepts complex, cool, nearly level

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Durixerolls, moist, and similar soils: 50 percent
Halaquepts and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Durixerolls, Moist

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; loam
6 to 24 inches; loam
24 to 32 inches; silt loam
32 to 36 inches; cemented cobbly loam
36 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 15 inches; fine sandy loam
15 to 26 inches; fine sandy loam
26 to 60 inches; sandy loam

Dissimilar Minor Components

- Aquolls (10 percent)
- Playas (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

148—Durixerolls-Halaquepts complex, cool, undulating

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Durixerolls, moist, and similar soils: 55 percent
Halaquepts and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Durixerolls, Moist

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; loam
6 to 24 inches; loam
24 to 32 inches; silt loam
32 to 36 inches; cemented cobbly loam
36 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till or glaciolacustrine deposits
Slope range: 3 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 15 inches; silt loam
15 to 26 inches; sandy loam
26 to 60 inches; sandy loam

Dissimilar Minor Components

- Aquolls (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

149—Durixerolls-Halaquepts complex, cool, nearly level to rolling

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 48 to 49 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Durixerolls and similar soils: 30 percent
Durixerolls, moist, and similar soils: 25 percent
Halaquepts, cemented substratum, and similar soils: 25 percent
Dissimilar minor components: 20 percent

Characteristics of Durixerolls

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 32 inches; loam
32 to 42 inches; cemented cobbly loam
42 to 60 inches; very gravelly coarse sandy loam

Characteristics of Durixerolls, Moist

Landscape position
Landform: Middle positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 18 to 36 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 38 inches; loam
38 to 45 inches; cemented cobbly loam
45 to 60 inches; very gravelly coarse sandy loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 5 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Elvedere soils (5 percent)
- Playas (5 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

150—Dutchenry ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Dutchenry and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soil, cemented substratum (5 percent)
- Dutchenry soils, steeper sloping (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

151—Ebadlow silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ebadlow and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Ebadlow Soil

Landscape position
Landform: Fans on nonglaciated plateaus
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over colluvium derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 8 inches; silt loam
8 to 32 inches; silt loam
32 to 49 inches; extremely cobbly loam
49 to 60 inches; extremely cobbly sandy loam

Dissimilar Minor Components

- Badgermont soils (5 percent)
- Broadax soils (5 percent)
- Spofford soils (5 percent)
- Van Nostern soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

152—Ebadlow-Spofford-Badgermont complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ebadlow and similar soils: 30 percent
Spofford and similar soils: 30 percent
Badgermont and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Ebadlow Soil

Landscape position
Landform: Fans on nonglaciated plateaus
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over colluvium derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 32 inches; silt loam
32 to 49 inches; extremely cobbly loam
49 to 60 inches; extremely cobbly sandy loam

Characteristics of Spofford Soil

Landscape position
Landform: Circular areas of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 60 inches to moderately cemented duripan; 50 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 10
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; silt loam
9 to 21 inches; silt loam
21 to 44 inches; silt loam
44 to 53 inches; cemented material
53 to 58 inches; silt loam
58 to 62 inches; unweathered bedrock

Characteristics of Badgermont Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 9 inches; cobbly loam
9 to 25 inches; cobbly loam
25 to 38 inches; extremely cobbly clay loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (5 percent)
- Argabak soils (5 percent)
- Badge soils (5 percent)
- Morrow soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

153—Ebadlow-Spofford-Badgermont complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ebadlow and similar soils: 35 percent
Spofford and similar soils: 35 percent
Badgermont and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Ebadlow Soil

Landscape position
Landform: Fans on nonglaciated plateaus
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 25 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 32 inches; silt loam
32 to 49 inches; extremely cobbly loam
49 to 60 inches; extremely cobbly sandy loam

Characteristics of Spofford Soil

Landscape position
Landform: Circular areas of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to moderately cemented duripan; 50 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 10
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; silt loam
9 to 21 inches; silt loam
21 to 44 inches; silt loam
44 to 53 inches; cemented material
53 to 58 inches; silt loam
58 to 62 inches; unweathered bedrock

Characteristics of Badgermont Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; cobbly loam
9 to 25 inches; cobbly loam
25 to 38 inches; extremely cobbly clay loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (4 percent)
- Badge soils (3 percent)
- Morrow soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

154—Ellisforde fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,700 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Ellisforde and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 26 inches; very fine sandy loam
26 to 60 inches; stratified loamy very fine sand to silt loam

Dissimilar Minor Components

- Ellisforde soils, steeper sloping (5 percent)
- Pogue soils (5 percent)
- Cashmont soils (3 percent)
- Magallon soils (2 percent)

Major Use

Irrigated cropland

155—Ellisforde fine sandy loam, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,500 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Ellisforde and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 26 inches; very fine sandy loam
26 to 60 inches; stratified loamy very fine sand to silt loam

Dissimilar Minor Components

- Quincy soils (5 percent)
- Touhey soils (5 percent)
- Pogue soils (3 percent)
- Burbank soils (2 percent)

Major Use

Livestock grazing

156—Ellisforde very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ellisforde and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces and depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 18 inches; very fine sandy loam
18 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Components

- Ellisforde soils, steeper sloping (5 percent)
- Halaquepts (5 percent)
- Strat soils (2 percent)

- Stubblefield soils (1 percent)
- Touhey soils (1 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

157—Ellisforde loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,500 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Ellisforde and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; loam
10 to 27 inches; very fine sandy loam
27 to 60 inches; stratified loamy very fine sand to silt loam

Dissimilar Minor Components

- Ellisforde soils, steeper sloping (5 percent)
- Heytou soils (5 percent)
- Quincy soils (5 percent)

Major Use

Livestock grazing

158—Ellisforde-DelRio-Nyssaton complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ellisforde and similar soils: 35 percent
DelRio and similar soils: 30 percent
Nyssaton and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 7 inches; silt loam
7 to 15 inches; very fine sandy loam
15 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of DelRio Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over sandy glaciolacustrine deposits
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 60 inches; fine sandy loam

Characteristics of Nyssaton Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; silt loam
9 to 60 inches; silt loam

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Playas (5 percent)
- Quincy soils (3 percent)
- Sanbee soils (2 percent)

Major Use

Livestock grazing

159—Ellisforde-Halaquepts complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,700 feet
Mean annual precipitation: 9 to 10 inches

Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Ellisforde and similar soils: 45 percent
Halaquepts and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3c
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; loam
10 to 27 inches; very fine sandy loam
27 to 60 inches; stratified loamy very fine sand to silt loam

Characteristics of Halaquepts

Landscape position
Landform: Lowest positions of swales of terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with volcanic ash over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 31 inches; silt loam
31 to 38 inches; fine sandy loam
38 to 45 inches; silty clay loam
45 to 50 inches; sandy loam
50 to 60 inches; gravelly loam

Dissimilar Minor Components

- Elvedere soils (10 percent)
- Aquolls (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

160—Ellisforde-Nespelem-Nemire complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 2,400 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Ellisforde and similar soils: 35 percent
Nespelem and similar soils: 35 percent
Nemire, moist, and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 19 inches; very fine sandy loam
19 to 36 inches; very fine sandy loam
36 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of Nespelem Soil

Landscape position
Landform: Terraces of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over a duripan over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 8
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 28 inches; silt loam
28 to 38 inches; cemented silt loam
38 to 60 inches; stratified very fine sandy loam to silty clay loam

Characteristics of Nemire Soil, Moist

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over sandy glaciolacustrine deposits
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Tubspring soils (5 percent)
- Heytou soils (3 percent)
- Stubblefield soils (2 percent)

Major Use

Livestock grazing

161—Ellisforde-Nyssaton-DelRio complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ellisforde and similar soils: 35 percent
Nyssaton and similar soils: 30 percent
DelRio and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 7 inches; silt loam
7 to 15 inches; very fine sandy loam
15 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of Nyssaton Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; silt loam
9 to 60 inches; silt loam

Characteristics of DelRio Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over sandy glaciolacustrine deposits
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Haploxerolls (8 percent)
- Elvedere soils (3 percent)
- Quincy soils (2 percent)
- Sanbee soils (2 percent)

Major Use

Livestock grazing

162—Elvedere silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,300 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Elvedere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Elvedere Soil

Landscape position
Landform: Glacial lake terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Dissimilar Minor Components

- Elvedere soils, steeper sloping (5 percent)
- Halaquepts (3 percent)
- Haploxerolls (3 percent)
- Simsfield soils (2 percent)
- St. Andrews soils (1 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

163—Elvedere silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,300 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Elvedere and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Elvedere Soil

Landscape position
Landform: Glacial lake terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Dissimilar Minor Components

- Elvedere soils, steeper sloping (5 percent)
- Halaquepts (3 percent)
- Haploxerolls (3 percent)
- Simsfield soils (2 percent)
- St. Andrews soils (1 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

164—Elvedere-Leahy complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,300 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Elvedere and similar soils: 60 percent
Leahy and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Elvedere Soil

Landscape position
Landform: Glacial lake terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Characteristics of Leahy Soil

Landscape position
Landform: Drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 2 to 6 inches to natric horizon
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 48 to 60 inches (see Water Features table)
Salinity maximum: Moderately saline (about 12 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 23
Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 9-15 PZ (R008XY401WA)

Typical profile
0 to 6 inches; very fine sandy loam
6 to 13 inches; silty clay loam
13 to 27 inches; silty clay loam
27 to 60 inches; silty clay loam

Dissimilar Minor Components

- Simsfield soils (5 percent)
- Aquolls (2 percent)
- St. Andrews soils (2 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

165—Entiat-Rock outcrop-Torriorthents complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 145 to 180 days

Map Unit Composition

Entiat and similar soils: 50 percent
Rock outcrop: 20 percent
Torriorthents and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Entiat Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; gravelly fine sandy loam
6 to 11 inches; very gravelly loam
11 to 17 inches; very gravelly loam
17 to 27 inches; weathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Characteristics of Torriorthents

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 8 inches; very cobbly coarse sandy loam
8 to 60 inches; very cobbly coarse sand

Dissimilar Minor Components

- Dinkels soils (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

166—Entiat-Roosevelt-Rock outcrop complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Entiat and similar soils: 55 percent
Roosevelt and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Entiat Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 8 to 30 percent
Depth to restrictive feature: 12 to 20 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; gravelly fine sandy loam
6 to 11 inches; very gravelly loam
11 to 17 inches; very gravelly loam
17 to 27 inches; weathered bedrock

Characteristics of Roosevelt Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 8 to 30 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 26 inches; fine sandy loam
26 to 36 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Rubble land (5 percent)
- Cashmont soils (2 percent)
- Dinkels soils (2 percent)
- Torriorthents (1 percent)

Major Uses

Irrigated cropland and livestock grazing

167—Ephrata fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,000 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Ephrata and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ephrata Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 2 to 5 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 25 inches; gravelly fine sandy loam
25 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Quincy soils (10 percent)
- Ephrata soils, steeper sloping (5 percent)

Major Use

Irrigated cropland

168—Esquatzel silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Esquatzel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Esquatzel Soil

Landscape position
Landform: Moses Coulee
Geomorphic position (three-dimensional): Dips

Properties and qualities
Parent material: Silty alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6c
Land capability subclass (irrigated): 2e
Ecological site: LOAMY BOTTOM 6-9 PZ (R007XY402WA)

Typical profile
0 to 7 inches; silt loam
7 to 12 inches; silt loam
12 to 19 inches; silt loam
19 to 28 inches; silt loam
28 to 46 inches; silt loam
46 to 60 inches; silt loam

Dissimilar Minor Components

- Haploxerolls (10 percent)
- Esquatzel soils, cemented substratum (5 percent)

Major Uses

Nonirrigated and irrigated cropland

169—Esquatzel silt loam, cemented substratum, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 1,800 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Esquatzel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Esquatzel Soil

Landscape position
Landform: Moses Coulee
Geomorphic position (three-dimensional): Dips

Properties and qualities
Parent material: Silty alluvium over a duripan
Slope range: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3

Available water capacity (entire profile): High (about 9.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3c
Land capability subclass (irrigated): 2e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 7 inches; silt loam
7 to 44 inches; silt loam
44 to 47 inches; cemented material
47 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

- Esquatzel soils (10 percent)
- Haploxerolls (5 percent)

Major Uses

Nonirrigated and irrigated cropland

170—Esquatzel silt loam, channeled, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Esquatzel and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Esquatzel Soil

Landscape position
Landform: Incised drainageways of Moses Coulee
Geomorphic position (three-dimensional): Dips

Properties and qualities
Parent material: Silty alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Very high (about 12.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6w
Ecological site: LOAMY BOTTOM 6-9 PZ (R007XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 34 inches; silt loam
34 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Esquatzel soils, cemented substratum (5 percent)
- Haploxerolls (5 percent)

Major Use

Livestock grazing

171—Ewall loamy fine sand, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ewall and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ewall Soil

Landscape position
Landform: Hummocky areas of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian deposits or sandy glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 18 inches; loamy fine sand
18 to 28 inches; loamy coarse sand
28 to 60 inches; coarse sand

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)

- Brazlan soils (3 percent)
- Siweeka soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

172—Ewall-Alecanyon complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ewall and similar soils: 50 percent
Alecanyon and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Ewall Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Eolian deposits or sandy glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 18 inches; loamy fine sand
18 to 28 inches; loamy coarse sand
28 to 60 inches; coarse sand

Characteristics of Alecanyon Soil

Landscape position
Landform: Eskers, kames, and terraces of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 3 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very cobbly ashy loamy sand
9 to 12 inches; very cobbly fine sandy loam
12 to 20 inches; very cobbly loamy coarse sand
20 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Cachebutte soils (5 percent)
- Brazlan soils (2 percent)
- Siweeka soils (2 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

173—Farmer ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Farmer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Farmer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; silt loam

Dissimilar Minor Components

- Farmer soils, steeper sloping (10 percent)
- Norax soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

174—Farmer ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Farmer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Farmer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; silt loam

Dissimilar Minor Components

- Norax soils (10 percent)
- Farmer soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

175—Farmer ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Farmer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Farmer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 10.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; silt loam

Dissimilar Minor Components

- Norax soils (10 percent)
- Farmer soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

176—Farmer ashy fine sandy loam, cemented substratum, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Farmer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Farmer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam
19 to 48 inches; silt loam
48 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Farmer soils, steeper sloping (5 percent)
- Norax soils (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

177—Farmer ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Farmer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Farmer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; ashy fine sandy loam
11 to 19 inches; ashy fine sandy loam

19 to 48 inches; silt loam
48 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Farmer soils, steeper sloping (5 percent)
- Norax soils (5 percent)
- Dutchenry soils (3 percent)
- Sevar soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

178—Farrell very fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,700 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 135 to 185 days

Map Unit Composition

Farrell and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Farrell Soil

Landscape position
Landform: Terraces of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over glaciofluvial deposits
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 20 inches; very fine sandy loam
20 to 60 inches; stratified coarse sandy loam to silt loam

Dissimilar Minor Components

- Farrell soils, steeper sloping (10 percent)

Major Uses

Nonirrigated and irrigated cropland

179—Finley gravelly fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Finley and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Finley Soil

Landscape position
Landform: Fan piedmonts
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy alluvium over sandy alluvium
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 8 inches; gravelly fine sandy loam
8 to 23 inches; very gravelly loam
23 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

- Argabak soils (10 percent)
- Taunton soils (10 percent)

Major Use

Livestock grazing

180—Finley very cobbly fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Finley and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Finley Soil

Landscape position
Landform: Fan piedmonts
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy alluvium over sandy alluvium
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 8 inches; very cobbly fine sandy loam
8 to 23 inches; very gravelly loam
23 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

- Argabak soils (10 percent)
- Taunton soils (10 percent)

Major Use

Livestock grazing

181—Finley stony loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,200 feet

Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Finley and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Finley Soil

Landscape position
Landform: Fan piedmonts
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy alluvium over sandy alluvium
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 6 inches; stony loam
6 to 22 inches; very gravelly loam
22 to 26 inches; very gravelly sandy loam
26 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

- Esquatzel soils (5 percent)
- Finley soils, steeper sloping (5 percent)
- Warden soils (3 percent)
- Rubble land (2 percent)

Major Use

Livestock grazing

182—Ginnis fine sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ginnis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ginnis Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 20 inches; sandy loam
20 to 29 inches; sandy loam
29 to 35 inches; gravelly sandy loam
35 to 45 inches; weathered bedrock

Dissimilar Minor Components

- Ginnis soils, steeper sloping (5 percent)
- Swakane soils (5 percent)
- Alecanyon soils (3 percent)
- Cachebutte soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

183—Ginnis fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ginnis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ginnis Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 20 inches; sandy loam
20 to 29 inches; sandy loam
29 to 35 inches; gravelly sandy loam
35 to 45 inches; weathered bedrock

Dissimilar Minor Components

- Ginnis soils, steeper sloping (5 percent)
- Swakane soils (5 percent)
- Alecanyon soils (3 percent)
- Cachebutte soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

184—Ginnis-Swakane-Rock outcrop complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Ginnis and similar soils: 45 percent
Swakane and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Ginnis Soil

Landscape position
Landform: North aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 20 inches; sandy loam
20 to 29 inches; sandy loam
29 to 35 inches; gravelly sandy loam
35 to 45 inches; weathered bedrock

Characteristics of Swakane Soil

Landscape position
Landform: South aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 13 inches; very gravelly loam
13 to 18 inches; extremely gravelly sandy loam
18 to 28 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Wagberg soils (10 percent)

Major Use

Livestock grazing

185—Grinrod-Ralls-Argabak complex, 8 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Grinrod and similar soils: 40 percent
Ralls and similar soils: 30 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Grinrod Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 10 inches; very cobbly loam
10 to 22 inches; extremely cobbly loam
22 to 32 inches; unweathered bedrock

Characteristics of Ralls Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 50 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 12 inches; cobbly clay loam
12 to 60 inches; very gravelly clay loam

Characteristics of Argabak Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 50 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Horseflat soils (3 percent)
- Haploxerolls (2 percent)

- Lickskillet soils (2 percent)
- Logy soils (2 percent)
- Zen soils (2 percent)
- Rock outcrop (1 percent)
- Rubble land (1 percent)
- Toler soils (1 percent)
- Winblow soils (1 percent)

Major Use

Livestock grazing

186—Grinrod-Ralls-Rubble land complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Grinrod and similar soils: 40 percent
Ralls and similar soils: 30 percent
Rubble land: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Grinrod Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 10 inches; very cobbly loam
10 to 22 inches; extremely cobbly loam
22 to 32 inches; unweathered bedrock

Characteristics of Ralls Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 30 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly silt loam
10 to 20 inches; gravelly clay loam
20 to 32 inches; gravelly silt loam
32 to 60 inches; very gravelly silt loam

Characteristics of Rubble Land

Description of areas: Colluvial deposits of gravel, cobbles, stones, and boulders typically underlain by basalt below a depth of 40 inches
Kind of rock fragments: Typically basalt
Soil material between voids: Little or none
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Argabak soils (3 percent)
- Rock outcrop (3 percent)
- Horseflat soils (2 percent)
- Lickskillet soils (2 percent)

Major Use

Livestock grazing

187—Grinrod-Rock outcrop-Rubble land complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Grinrod and similar soils: 50 percent
Rock outcrop: 20 percent
Rubble land: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Grinrod Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; very cobbly silt loam
6 to 10 inches; very cobbly loam
10 to 22 inches; extremely cobbly loam
22 to 32 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Characteristics of Rubble Land

Description of areas: Colluvial deposits of gravel, cobbles, stones, and boulders typically underlain by basalt below a depth of 40 inches
Kind of rock fragments: Typically basalt
Soil material between voids: Little or none
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Argabak soils (5 percent)
- Horseflat soils (3 percent)
- Lickskillet soils (2 percent)

Major Use

Livestock grazing

188—Halaquepts complex, nearly level

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 900 to 3,100 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Halaquepts and similar soils: 40 percent
Halaquepts, cemented substratum, and similar soils: 40 percent
Dissimilar minor components: 20 percent

Characteristics of Halaquepts

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 31 inches; silt loam
31 to 38 inches; sandy loam
38 to 45 inches; silty clay loam
45 to 50 inches; sandy clay loam
50 to 60 inches; gravelly loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Highest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (10 percent)
- Leahy soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

189—Hanning silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Hanning and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Hanning Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 15+ PZ (R009XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 17 inches; silt loam
17 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 51 inches; silt loam
51 to 60 inches; silt loam

Dissimilar Minor Components

- Hanning soils, steeper sloping (5 percent)
- McCue soils (5 percent)
- Badgermont soils (3 percent)
- Mondovi soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

190—Hanning-McCue-Badgermont complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Hanning, cemented substratum, and similar soils: 45 percent
McCue and similar soils: 25 percent
Badgermont and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Hanning Soil, Cemented Substratum

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 15+ PZ (R009XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 28 inches; silt loam
28 to 50 inches; silt loam
50 to 58 inches; silt loam
58 to 60 inches; cemented material

Characteristics of McCue Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 26 inches; silty clay loam
26 to 53 inches; silt loam
53 to 60 inches; cemented material

Characteristics of Badgermont Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 9 inches; cobbly loam
9 to 25 inches; cobbly loam
25 to 38 inches; extremely cobbly clay loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Mondovi soils (4 percent)
- Aquolls (3 percent)
- Van Nostern soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

191—Hanning-McCue-Badgermont complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Hanning, cemented substratum, and similar soils: 45 percent
McCue and similar soils: 25 percent
Badgermont and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Hanning Soil, Cemented Substratum

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 15+ PZ (R009XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 28 inches; silt loam
28 to 50 inches; silt loam
50 to 58 inches; silt loam
58 to 60 inches; cemented material

Characteristics of McCue Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 26 inches; silty clay loam
26 to 53 inches; silt loam
53 to 60 inches; cemented material

Characteristics of Badgermont Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; cobbly loam
9 to 25 inches; cobbly loam
25 to 38 inches; extremely cobbly clay loam
38 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Mondovi soils (5 percent)
- Van Nostern soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

192—Haploxerolls, nearly level to gently sloping

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Haploxerolls and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Haploxerolls

Landscape position
Landform: Terraces on plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 8 inches; silt loam
8 to 13 inches; silt loam
13 to 47 inches; stratified gravelly sand to silt loam
47 to 61 inches; stratified extremely gravelly coarse sand to sandy loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Corbaley soils (3 percent)
- Logy soils (3 percent)
- Kester soils (2 percent)
- Xerofluvents (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

193—Haploxerolls, moderately well drained, nearly level to gently sloping

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 4,000 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Haploxerolls, wet, and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Haploxerolls, Wet

Landscape position
Landform: Depressions of plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 18 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: SEMIWET MEADOW 9-15 PZ (R008XY602WA)

Typical profile
0 to 5 inches; silt loam
5 to 32 inches; silt loam
32 to 43 inches; ashy fine sandy loam
43 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Haploxerolls, steeper sloping (5 percent)
- Broadax soils (4 percent)
- Hanning soils (2 percent)
- Logy soils (2 percent)
- McCue soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

194—Haploxerolls-Aquolls-Halaquepts complex, nearly level to gently sloping

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 3,000 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Map Unit Composition

Haploxerolls and similar soils: 35 percent
Aquolls and similar soils: 30 percent
Halaquepts, cemented substratum, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Haploxerolls

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)

Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 16 inches; fine sandy loam
16 to 25 inches; fine sandy loam
25 to 41 inches; ashy fine sandy loam
41 to 60 inches; ashy sandy loam

Characteristics of Aquolls

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Recent alluvium over older alluvium, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 5w
Ecological site: SEMIWET MEADOW 9-15 PZ (R008XY602WA)

Typical profile
0 to 8 inches; silt loam
8 to 20 inches; silt loam
20 to 33 inches; silt loam
33 to 40 inches; silt loam
40 to 50 inches; silty clay loam
50 to 60 inches; stratified gravelly loamy coarse sand to silty clay loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Middle positions of depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glacial till, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Durixerolls (3 percent)
- St. Andrews soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing (fig. 7)



Figure 7.—Livestock grazing in an area of Haploxerolls-Aquolls-Halaquepts complex, nearly level to gently sloping.

195—Heytou-Stubblefield complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Heytou and similar soils: 50 percent
Stubblefield and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Heytou Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very stony loam
10 to 26 inches; very cobbly loam
26 to 60 inches; very cobbly loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Grinrod soils (5 percent)
- Skaha soils (3 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

196—Heytou-Stubblefield complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Heytou and similar soils: 50 percent
Stubblefield and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Heytou Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very stony loam
10 to 26 inches; very cobbly loam
26 to 60 inches; very cobbly loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Grinrod soils (5 percent)
- Skaha soils (3 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

197—Heytou-Stubblefield complex, 30 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Heytou and similar soils: 50 percent
Stubblefield and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Heytou Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 30 to 45 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very stony loam
10 to 26 inches; very cobbly loam
26 to 60 inches; very cobbly loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 30 to 45 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Grinrod soils (4 percent)
- Rubble land (2 percent)
- Skaha soils (2 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

198—Heytou-Stubblefield-Rock outcrop complex, 20 to 50 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Heytou and similar soils: 45 percent
Stubblefield and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 20 percent

Characteristics of Heytou Soil

Landscape position
Landform: South aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very stony loam
10 to 26 inches; very cobbly loam
26 to 60 inches; very cobbly loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 20 to 50 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Grinrod soils (5 percent)
- Haploxerolls (5 percent)
- Lickskillet soils (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

199—Heytou-Stubblefield-Siweeka complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,900 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Heytou and similar soils: 35 percent
Stubblefield and similar soils: 30 percent
Siweeka, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Heytou Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very stony loam
10 to 36 inches; very gravelly loam
36 to 60 inches; very cobbly loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 12 inches; very cobbly fine sandy loam
12 to 22 inches; very cobbly fine sandy loam
22 to 30 inches; very cobbly sandy loam
30 to 41 inches; cemented material
41 to 60 inches; gravelly fine sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 27 inches; gravelly ashy fine sandy loam
27 to 39 inches; gravelly sandy loam
39 to 43 inches; cemented material
43 to 47 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (5 percent)
- Haploxerolls (5 percent)
- Argabak soils (3 percent)
- Lickskillet soils (2 percent)

Major Use

Livestock grazing

200—Heytou-Timentwa-Strat complex, 20 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Heytou and similar soils: 35 percent
Timentwa and similar soils: 30 percent
Strat and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Heytou Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony loam
4 to 20 inches; very cobbly loam
20 to 60 inches; very cobbly loam

Characteristics of Timentwa Soil

Landscape position
Landform: North aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 20 to 70 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 33 inches; ashy loam
33 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Strat Soil

Landscape position
Landform: North aspects of terraces, kames, and eskers on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 20 to 50 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very cobbly sandy loam
9 to 20 inches; very cobbly sandy loam
20 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Stubblefield soils (8 percent)
- DelRio soils (3 percent)
- Lickskillet soils (2 percent)
- Rock outcrop (1 percent)
- Rubble land (1 percent)

Major Use

Livestock grazing

201—Jordy ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Jordy soils, steeper sloping (5 percent)
- Argabak soils (3 percent)
- Camaspatch soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

202—Jordy ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Jordy soils, steeper sloping (5 percent)
- Argabak soils (3 percent)
- Camaspatch soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

203—Jordy ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Jordy soils, steeper sloping (5 percent)
- Argabak soils (3 percent)
- Camaspatch soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

204—Jordy-Argabak complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Argabak and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Farmer soils, cemented substratum (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

205—Jordy-Argabak complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Argabak and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Farmer soil, cemented substratum (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

206—Jordy-Argabak complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Argabak and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Farmer soils, cemented substratum (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

207—Jordy-Camaspatch complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Camaspatch and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Bagdad soils, cemented substratum (5 percent)
- Dougville soils (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

208—Jordy-Camaspatch complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Camaspatch and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Bagdad soils, cemented substratum (5 percent)
- Dougville soils (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

209—Jordy-Camaspatch complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Jordy and similar soils: 50 percent
Camaspatch and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Jordy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 21 inches; silt loam
21 to 23 inches; silt loam
23 to 33 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Bagdad soils, cemented substratum (5 percent)
- Dougville soils (5 percent)
- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

210—Kester ashy fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Kester and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 25 inches; ashy sandy loam
25 to 35 inches; ashy sandy loam
35 to 45 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (4 percent)
- Argabak soils (3 percent)
- Corbaley soils (3 percent)

- Rock outcrop (3 percent)
- Lickskillet soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

211—Kiakus-Shinn-Lorena complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,500 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Kiakus and similar soils: 35 percent
Shinn and similar soils: 30 percent
Lorena and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Kiakus Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess over basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Pseudoroegnera spicata (F006XY801WA)

Typical profile
0 to 3 inches; loam
3 to 9 inches; loam
9 to 22 inches; loam
22 to 32 inches; unweathered bedrock

Characteristics of Shinn Soil

Landscape position
Landform: Intermounds of mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very gravelly loam
4 to 10 inches; very gravelly loam
10 to 14 inches; unweathered bedrock

Characteristics of Lorena Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 12 inches; silt loam
12 to 25 inches; silt loam
25 to 35 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)

Major Uses

Livestock grazing and forestry

212—Kiakus-Shinn-Lorena complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,500 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Kiakus and similar soils: 40 percent
Shinn and similar soils: 30 percent
Lorena and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Kiakus Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess over basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Pseudoroegnera spicata (F006XY801WA)

Typical profile
0 to 3 inches; loam
3 to 9 inches; loam
9 to 22 inches; loam
22 to 32 inches; unweathered bedrock

Characteristics of Shinn Soil

Landscape position
Landform: Intermounds of mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very gravelly loam
4 to 10 inches; very gravelly loam
10 to 14 inches; unweathered bedrock

Characteristics of Lorena Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 12 inches; silt loam
12 to 25 inches; silt loam
25 to 35 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)

Major Uses

Livestock grazing and forestry

213—Kiona cobbly very fine sandy loam, 25 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,800 feet

Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Kiona and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Kiona Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 25 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 3 inches; cobbly very fine sandy loam
3 to 19 inches; cobbly very fine sandy loam
19 to 60 inches; very cobbly sandy loam

Dissimilar Minor Components

- Rock outcrop (10 percent)
- Grinrod soils (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

214—Kiona-Rock outcrop complex, 25 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Kiona and similar soils: 50 percent
Rock outcrop: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Kiona Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 25 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 3 inches; stony very fine sandy loam
3 to 19 inches; cobbly very fine sandy loam
19 to 60 inches; very cobbly sandy loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Grinrod soils (10 percent)
- Rubble land (10 percent)

Major Use

Livestock grazing

215—Leahy-Elvedere-Halaquepts complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,300 feet
Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Leahy and similar soils: 40 percent
Elvedere and similar soils: 30 percent
Halaquepts, cemented substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Leahy Soil

Landscape position
Landform: Middle positions along drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 2 to 6 inches to natric horizon
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 48 to 60 inches (see Water Features table)
Salinity maximum: Moderately saline (about 12 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 23
Available water capacity (entire profile): Moderate (about 7.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 9-15 PZ (R008XY401WA)

Typical profile
0 to 6 inches; very fine sandy loam
6 to 13 inches; silty clay loam
13 to 27 inches; silty clay loam
27 to 60 inches; silty clay loam

Characteristics of Elvedere Soil

Landscape position
Landform: Highest positions along drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; silt loam
10 to 18 inches; silty clay loam
18 to 60 inches; silty clay loam

Characteristics of Halaquepts, Cemented Substratum

Landscape position
Landform: Lowest positions of swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 60 inches to weakly cemented duripan
Drainage class: Somewhat poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Slightly saline (about 7.5 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: ALKALI BOTTOM 6-9 PZ (R007XY401WA)

Typical profile
0 to 3 inches; fine sandy loam
3 to 28 inches; very fine sandy loam
28 to 34 inches; fine sandy loam
34 to 38 inches; cemented silty clay loam
38 to 43 inches; fine sandy loam
43 to 60 inches; loam

Dissimilar Minor Components

- Aquolls (3 percent)
- Touhey soils (3 percent)
- Simsfield soils (2 percent)
- St. Andrews soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

216—Leidl-Stemilt complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,000 to 4,200 feet

Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 75 to 120 days

Map Unit Composition

Leidl and similar soils: 45 percent
Stemilt, bedrock substratum, and similar soils: 45 percent
Dissimilar minor components: 10 percent

Characteristics of Leidl Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 8 inches; ashy loam
8 to 18 inches; ashy loam
18 to 27 inches; very cobbly clay loam
27 to 38 inches; extremely cobbly clay loam
38 to 48 inches; unweathered bedrock

Characteristics of Stemilt Soil, Bedrock Substratum

Landscape position
Landform: Draws and depressions of mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 6 inches; ashy loam
6 to 16 inches; ashy loam
16 to 27 inches; very gravelly ashy silt loam
27 to 50 inches; very gravelly clay loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Shinn soils (10 percent)

Major Uses

Livestock grazing and forestry

217—Leidl-Stemilt complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 75 to 120 days

Map Unit Composition

Leidl and similar soils: 50 percent
Stemilt, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Leidl Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 8 inches; ashy loam
8 to 18 inches; ashy loam
18 to 27 inches; very cobbly clay loam
27 to 38 inches; extremely cobbly clay loam
38 to 48 inches; unweathered bedrock

Characteristics of Stemilt Soil, Bedrock Substratum

Landscape position
Landform: Draws and depressions of mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 6 inches; ashy loam
6 to 16 inches; ashy loam
16 to 27 inches; very gravelly ashy silt loam
27 to 50 inches; very gravelly clay loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Shinn soils (10 percent)

Major Uses

Livestock grazing and forestry

218—Lickskillet very cobbly loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Lickskillet and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lickskillet Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 14 inches; very gravelly loam
14 to 24 inches; unweathered bedrock

Dissimilar Minor Components

- Lickskillet soils, steeper sloping (5 percent)
- Rock outcrop (5 percent)
- Winblow soils (3 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

219—Lickskillet very cobbly loam, 15 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Lickskillet and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lickskillet Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 35 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 14 inches; very gravelly loam
14 to 18 inches; unweathered bedrock

Dissimilar Minor Components

- Lickskillet soils, steeper sloping (5 percent)
- Rock outcrop (5 percent)
- Winblow soils (3 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

220—Lickskillet very cobbly loam, 35 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,900 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Lickskillet and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lickskillet Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 35 to 65 percent

Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 15 inches; very gravelly loam
15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Roloff soils (5 percent)
- Winblow soils (3 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

221—Lickskillet-Brazlan-Dezellem complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Lickskillet and similar soils: 35 percent
Brazlan and similar soils: 30 percent
Dezellem and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Lickskillet Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; very stony fine sandy loam
6 to 13 inches; very gravelly loam
13 to 17 inches; very gravelly loam
17 to 21 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 20 inches; very gravelly loam
20 to 24 inches; very gravelly sandy loam
24 to 32 inches; cemented gravelly coarse sandy loam
32 to 36 inches; unweathered bedrock

Characteristics of Dezellem Soil

Landscape position
Landform: Till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: COOL STONY 9-15 PZ (R008XY203WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Dissimilar Minor Components

- Argabak soils (10 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

222—Logy cobbly sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 190 days

Map Unit Composition

Logy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Logy Soil

Landscape position
Landform: Fans
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium and colluvium
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; cobbly sandy loam
10 to 28 inches; very gravelly sandy loam
28 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

Dissimilar Minor Components

- Logy soils, very stony surface (8 percent)
- Logy soils, steeper sloping (5 percent)
- Haploxerolls (2 percent)

Major Uses

Irrigated cropland and livestock grazing

223—Logy cobbly sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Logy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Logy Soil

Landscape position
Landform: Fans
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium and colluvium
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; cobbly sandy loam
10 to 28 inches; very gravelly sandy loam
28 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

Dissimilar Minor Components

- Logy soils (10 percent)
- Xerofluvents (5 percent)

Major Uses

Irrigated cropland and livestock grazing

224—Logy very stony sandy loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Logy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Logy Soil

Landscape position
Landform: Fans
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium and colluvium
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very stony sandy loam
9 to 22 inches; very gravelly sandy loam
22 to 60 inches; stratified extremely gravelly coarse sand to gravelly sandy loam

Dissimilar Minor Components

- Logy soils (5 percent)
- Quincy soils (5 percent)
- Xerofluvents (5 percent)

Major Use

Livestock grazing

225—Lorena silt loam, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 4,100 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Lorena and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lorena Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 22 inches; clay loam
22 to 26 inches; cobbly loam
26 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Lorena soils, steeper sloping (5 percent)
- Shinn soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

226—Lorena silt loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 4,100 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Lorena and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Lorena Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 22 inches; clay loam
22 to 26 inches; cobbly loam
26 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Lorena soils, steeper sloping (5 percent)
- Shinn soils (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

227—Lorena-Broadax complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 3,800 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Lorena and similar soils: 50 percent
Broadax and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Lorena Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 22 inches; clay loam
22 to 26 inches; cobbly loam
26 to 36 inches; unweathered bedrock

Characteristics of Broadax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 15+ PZ (R009XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 18 inches; silt loam
18 to 27 inches; silt loam
27 to 60 inches; silty clay loam

Dissimilar Minor Components

- McCue soils (3 percent)
- Shinn soils (3 percent)
- Mondovi soils (2 percent)
- Spofford soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

228—Lorena-Shinn complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,900 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Lorena and similar soils: 50 percent
Shinn and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Lorena Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 12 inches; silt loam
12 to 25 inches; silt loam
25 to 35 inches; unweathered bedrock

Characteristics of Shinn Soil

Landscape position
Landform: Intermounds of mountains
Geomorphic position (three-dimensional): Mountaintops

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very gravelly loam
4 to 10 inches; very gravelly loam
10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

- Kiakus soils (5 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

229—Magallon fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,500 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Magallon and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Magallon Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with sandy glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 14 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 19 inches; fine sandy loam
19 to 60 inches; fine sand

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Magallon soils, steeper sloping (5 percent)
- Quincy soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

230—Magallon fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,500 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Magallon and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Magallon Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with sandy glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 19 inches; fine sandy loam
19 to 60 inches; fine sand

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Magallon soils, steeper sloping (5 percent)
- Quincy soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

231—Malaga gravelly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,100 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 195 days

Map Unit Composition

Malaga and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Malaga Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with gravelly glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 28 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 3e
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 4 inches; gravelly fine sandy loam
4 to 12 inches; gravelly fine sandy loam
12 to 28 inches; extremely gravelly fine sandy loam
28 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

- Malaga soils, steeper sloping (5 percent)
- Quincy soils (5 percent)

Major Use

Irrigated cropland

232—Malaga cobbly fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,100 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 195 days

Map Unit Composition

Malaga and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Malaga Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with gravelly glacial outwash
Slope range: 0 to 8 percent

Depth to restrictive feature: 14 to 28 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 3s
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 4 inches; cobbly fine sandy loam
4 to 12 inches; gravelly fine sandy loam
12 to 20 inches; very gravelly fine sandy loam
20 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Malaga soils, steeper sloping (5 percent)
- Malaga soils, very stony surface (5 percent)
- Quincy soils (5 percent)

Major Use

Irrigated cropland

233—McCue-Broadax complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

McCue and similar soils: 50 percent
Broadax, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of McCue Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 26 inches; clay loam
26 to 53 inches; silty clay loam
53 to 60 inches; cemented material

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Dissimilar Minor Components

- Camaspatch soils (5 percent)
- Jordy soils (5 percent)
- Mondovi soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

234—McCue-Broadax complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

McCue and similar soils: 50 percent
Broadax, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of McCue Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 26 inches; clay loam
26 to 53 inches; silty clay loam
53 to 60 inches; cemented material

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Dissimilar Minor Components

- Camaspatch soils (5 percent)
- Jordy soils (5 percent)
- Mondovi soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

235—McCue-Broadax complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

McCue and similar soils: 50 percent
Broadax, cemented substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of McCue Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 26 inches; silty clay loam
26 to 53 inches; clay loam
53 to 60 inches; cemented material

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Dissimilar Minor Components

- Mondovi soils (5 percent)
- Norax soils (5 percent)
- Camaspatch soils (3 percent)
- Jordy soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

236—McCue-Broadax-Mondovi complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,100 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

McCue and similar soils: 40 percent
Broadax, cemented substratum, and similar soils: 30 percent
Mondovi and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of McCue Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 13 inches; silty clay
13 to 22 inches; silty clay loam
22 to 42 inches; silt loam
42 to 60 inches; cemented material

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Characteristics of Mondovi Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Silty alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2c
Ecological site: LOAMY BOTTOM 15+ PZ (R009XY402WA)

Typical profile
0 to 20 inches; silt loam
20 to 60 inches; silt loam

Dissimilar Minor Components

- Badgermont soils (4 percent)
- Camaspatch soils (3 percent)
- Van Nostern soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

237—McCue-Broadax-Mondovi complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

McCue and similar soils: 40 percent
Broadax, cemented substratum, and similar soils: 30 percent
Mondovi and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of McCue Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 7 inches; silt loam
7 to 13 inches; silty clay
13 to 22 inches; silty clay loam
22 to 42 inches; silt loam
42 to 60 inches; cemented material

Characteristics of Broadax Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 15 inches; silt loam
15 to 25 inches; silt loam
25 to 54 inches; silt loam
54 to 60 inches; cemented material

Characteristics of Mondovi Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Silty alluvium
Slope range: 3 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Rare (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 12 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY BOTTOM 15+ PZ (R009XY402WA)

Typical profile
0 to 20 inches; silt loam
20 to 60 inches; silt loam

Dissimilar Minor Components

- Badgermont soils (4 percent)
- Camaspatch soils (3 percent)
- Van Nostern soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

238—Morrow silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morrow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Morrow soils, steeper sloping (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

239—Morrow silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morrow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Morrow soils, steeper sloping (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

240—Morrow silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Morrow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Morrow soils, steeper sloping (5 percent)
- Spofford soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

241—Morrow-Argabak complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 75 percent
Argabak and similar soils: 25 percent

Characteristics of Morrow Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Major Uses

Nonirrigated cropland and livestock grazing

242—Morrow-Argabak complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 70 percent
Argabak and similar soils: 25 percent
Dissimilar minor components: 5 percent

Characteristics of Morrow Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

243—Morrow-Argabak-Badge complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Morrow and similar soils: 45 percent
Argabak and similar soils: 35 percent
Badge and similar soils: 15 percent
Dissimilar minor components: 5 percent

Characteristics of Morrow Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam

15 to 26 inches; silty clay loam
26 to 34 inches; silt loam
34 to 44 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Badge Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; very cobbly silt loam
8 to 13 inches; cobbly silt loam

13 to 28 inches; extremely cobbly clay loam
28 to 60 inches; very cobbly silt loam

Dissimilar Minor Components

- Rock outcrop (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

244—Nemire ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Nemire and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over old alluvium
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 12.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 2e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 16 inches; ashy fine sandy loam
16 to 37 inches; ashy fine sandy loam
37 to 47 inches; ashy fine sandy loam
47 to 60 inches; silt loam

Dissimilar Minor Components

- Corbaley soils (3 percent)
- Dougville soils (3 percent)

- Dutchenry soils (2 percent)
- Farmer soils (2 percent)
- Alstown soils (1 percent)
- Aquolls (1 percent)
- Broadax soils (1 percent)
- Renslow soils (1 percent)
- Waterflat soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

245—Nemire ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Nemire and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 24 inches; ashy fine sandy loam
24 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Nemire soils, steeper sloping (5 percent)
- Brazlan soils (2 percent)

- Timentwa soils (2 percent)
- Siweeka soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

246—Nemire ashy fine sandy loam, sandy substratum, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Nemire and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3w
Land capability subclass (irrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 48 inches; ashy sandy loam
48 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)
- Brazlan soils (3 percent)
- Siweeka soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

247—Nespelem-Nemire complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Nespelem and similar soils: 70 percent
Nemire and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Nespelem Soil

Landscape position
Landform: Terraces of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over a duripan over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 8
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 27 inches; silt loam
27 to 31 inches; cemented silt loam
31 to 60 inches; stratified very fine sandy loam to silty clay loam

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over sandy glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 48 inches; ashy sandy loam
48 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Aquolls (2 percent)
- Brazlan soils (2 percent)
- Haploxerolls (2 percent)
- Alecanyon soil (1 percent)
- Cachebutte soil (1 percent)
- Siweeka soils (1 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

248—Nespelem-Nemire complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Nespelem and similar soils: 70 percent
Nemire and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Nespelem Soil

Landscape position
Landform: Terraces of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 8
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 27 inches; silt loam
27 to 31 inches; cemented silt loam
31 to 60 inches; stratified very fine sandy loam to silty clay loam

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over sandy glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 48 inches; ashy sandy loam
48 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Alecanyon soils (3 percent)
- Cachebutte soils (2 percent)
- Ewall soils (2 percent)
- Brazlan soils (1 percent)
- Siweeka soils (1 percent)
- Timentwa soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

249—Norax silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,600 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Norax and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Norax Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 4 inches; silt loam
4 to 34 inches; silty clay loam
34 to 54 inches; loam
54 to 60 inches; cemented gravelly sandy loam

Dissimilar Minor Components

- Norax soils, steeper sloping (5 percent)
- Farmer soils, cemented substratum (3 percent)
- Sevar soils (3 percent)
- Dougville soils, cemented substratum (2 percent)
- Jordy soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

250—Norax-Dutchenry-Dougville complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Norax and similar soils: 35 percent
Dutchenry and similar soils: 30 percent
Dougville, cemented substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Norax Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 4 inches; silt loam
4 to 34 inches; silty clay loam
34 to 54 inches; loam
54 to 60 inches; cemented gravelly sandy loam

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 3 to 8 percent

Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Jordy soils (5 percent)
- Nemire soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

251—Norax-Dutchenry-Dougville complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Norax and similar soils: 35 percent
Dutchenry and similar soils: 30 percent
Dougville, cemented substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Norax Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 4 inches; silt loam
4 to 34 inches; silty clay loam
34 to 54 inches; loam
54 to 60 inches; cemented gravelly sandy loam

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 8 to 15 percent

Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Jordy soils (5 percent)
- Nemire soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

252—Norax-Dutchenry-Dougville complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Norax and similar soils: 35 percent
Dutchenry and similar soils: 30 percent
Dougville, cemented substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Norax Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 4 inches; silt loam
4 to 34 inches; silty clay loam
34 to 54 inches; loam
54 to 60 inches; cemented gravelly sandy loam

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 15 to 30 percent

Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Characteristics of Dougville Soil, Cemented Substratum

Landscape position
Landform: Draws of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): High (about 11.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 18 inches; ashy fine sandy loam
18 to 36 inches; ashy fine sandy loam
36 to 58 inches; silt loam
58 to 60 inches; cemented gravelly silt loam

Dissimilar Minor Components

- Jordy soils (5 percent)
- Nemire soils (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

253—Pateros-Rock outcrop complex, 25 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 15 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Pateros and similar soils: 75 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Pateros Soil

Landscape position
Landform: North aspects of scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Volcanic ash and colluvium derived from granite
Slope range: 25 to 70 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 7 inches; cobbly ashy loam
7 to 18 inches; very cobbly ashy loam
18 to 60 inches; extremely cobbly ashy fine sandy loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Pateros soils, stony surface (5 percent)
- Rubble land (3 percent)

- Ginnis soils (1 percent)
- Swakane soils (1 percent)

Major Uses

Livestock grazing and forestry

254—Peshastin fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 3 to 8 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Peshastin soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

255—Peshastin fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 8 to 15 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Peshastin soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

256—Peshastin fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,800 feet

Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 15 to 30 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (5 percent)
- Peshastin soils, steeper sloping (5 percent)
- Peshastin soils, very stony surface (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

257—Peshastin fine sandy loam, compacted substratum, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glacial outwash and ablation till
Slope range: 3 to 8 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 20 inches; loam
20 to 60 inches; extremely gravelly loam

Dissimilar Minor Components

- Burch soils (5 percent)
- Peshastin soils, steeper sloping (5 percent)
- Cashmere soils (3 percent)
- Magallon soils (2 percent)

Major Use

Irrigated cropland

258—Peshastin fine sandy loam, compacted substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glacial outwash and ablation till
Slope range: 8 to 15 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 20 inches; loam
20 to 60 inches; extremely gravelly loam

Dissimilar Minor Components

- Burch soils (5 percent)
- Peshastin soils, steeper sloping (5 percent)
- Cashmere soils (3 percent)
- Magallon soils (2 percent)

Major Use

Irrigated cropland

259—Peshastin stony fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 8 to 15 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 4e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; stony fine sandy loam
9 to 20 inches; cobbly sandy loam
20 to 60 inches; extremely cobbly sandy loam

Dissimilar Minor Components

- Touhey soils (10 percent)
- Skaha soils (5 percent)

Major Uses

Irrigated cropland and livestock grazing

260—Peshastin stony fine sandy loam, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Peshastin and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Peshastin Soil

Landscape position
Landform: Scarp slopes of terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 30 to 60 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; stony fine sandy loam
9 to 20 inches; cobbly sandy loam
20 to 60 inches; extremely cobbly sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Peshastin soils, steeper sloping (5 percent)

Major Use

Livestock grazing

261—Pogue fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glacial outwash
Slope range: 0 to 3 percent

Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 24 inches; fine sandy loam
24 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Aeneas soils (3 percent)
- Burbank soils (3 percent)
- Pogue soils, steeper sloping (2 percent)
- Skaha soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

262—Pogue fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 24 inches; fine sandy loam
24 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Aeneas soils (3 percent)
- Pogue soils, steeper sloping (3 percent)
- Cashmere soils (2 percent)
- Burbank soils (1 percent)
- Skaha soils (1 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

263—Pogue fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 700 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 9 inches; fine sandy loam
9 to 24 inches; fine sandy loam
24 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Aeneas soils (3 percent)
- Pogue soils, steeper sloping (3 percent)
- Cashmere soils (2 percent)
- Burbank soils (1 percent)
- Skaha soils (1 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

264—Pogue gravelly fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 9 inches; gravelly fine sandy loam
9 to 26 inches; gravelly fine sandy loam
26 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Cashmont soils (5 percent)
- Quincy soils (5 percent)
- Pogue soils, steeper sloping (3 percent)
- Burbank soils (2 percent)

Major Use

Irrigated cropland

265—Pogue gravelly fine sandy loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 15 to 25 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 9 inches; gravelly fine sandy loam
9 to 26 inches; gravelly fine sandy loam
26 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Cashmont soils (5 percent)
- Malaga soils (5 percent)
- Magallon soils (5 percent)

Major Uses

Irrigated cropland and livestock grazing

266—Pogue cobbly fine sandy loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; cobbly fine sandy loam
8 to 18 inches; cobbly fine sandy loam
18 to 24 inches; gravelly sandy loam
24 to 60 inches; very cobbly sand

Dissimilar Minor Components

- Pogue soils, stony surface (5 percent)
- Quincy soils (5 percent)
- Burbank soils (3 percent)
- Cashmere soils (1 percent)
- Magallon soils (1 percent)

Major Uses

Irrigated cropland and livestock grazing

267—Pogue cobbly fine sandy loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Pogue and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 13 inches; cobbly fine sandy loam
13 to 30 inches; cobbly fine sandy loam
30 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Quincy soils (10 percent)
- Aeneas soils (4 percent)
- Magallon soils (4 percent)
- Torriorthents (2 percent)

Major Use

Livestock grazing

268—Pogue extremely stony fine sandy loam, 3 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 3 to 25 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 10 inches; extremely stony fine sandy loam
10 to 15 inches; cobbly fine sandy loam
15 to 28 inches; cobbly fine sandy loam
28 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Burbank soils (5 percent)
- Magallon soils (5 percent)
- Quincy soils (3 percent)
- Cashmere soils (2 percent)

Major Uses

Irrigated cropland and livestock grazing

269—Pogue bouldery fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Alluvium mixed with loess over glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Land capability subclass (irrigated): 4e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; bouldery fine sandy loam
10 to 20 inches; cobbly fine sandy loam

20 to 30 inches; cobbly fine sandy loam
30 to 60 inches; very gravelly sand

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Quincy soils (5 percent)
- Pogue soils, steeper sloping (3 percent)
- Burbank soils (2 percent)

Major Uses

Irrigated cropland and livestock grazing

270—Pogue loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Pogue and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Pogue Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 35 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: CLAYEY 9-15 PZ (R008XY303WA)

Typical profile
0 to 18 inches; loam
18 to 25 inches; gravelly loam
25 to 60 inches; very cobbly sand

Dissimilar Minor Components

- Cheviot soils (5 percent)
- Pogue soils, steeper sloping (5 percent)
- Cashmere soils (3 percent)
- Magallon soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

271—Prosser-Starbuck complex, 15 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Prosser and similar soils: 50 percent
Starbuck and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Prosser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 15 to 45 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 5 inches; very fine sandy loam
5 to 16 inches; very fine sandy loam
16 to 26 inches; very fine sandy loam
26 to 36 inches; unweathered bedrock

Characteristics of Starbuck Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 45 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 5 inches; stony very fine sandy loam
5 to 15 inches; very fine sandy loam
15 to 19 inches; unweathered bedrock

Dissimilar Minor Components

- Bakeoven soils (5 percent)
- Ritzville soils (5 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

272—Quincy fine sand, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,200 feet
Mean annual precipitation: 8 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 195 days

Map Unit Composition

Quincy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian sand
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 6e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 10 inches; fine sand
10 to 60 inches; fine sand

Dissimilar Minor Components

- Quincy soils, steeper sloping (5 percent)
- Burbank soils (3 percent)
- Supplee soils (3 percent)
- Cashmere soils (2 percent)
- Pogue soils (2 percent)

Major Uses

Irrigated cropland and livestock grazing

273—Quincy fine sand, high precipitation, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Quincy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Quincy Soil

Landscape position
Landform: Kames, terraces, and channels of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Eolian sand
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; fine sand
6 to 42 inches; loamy fine sand
42 to 54 inches; fine sand
54 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Quincy soils, steeper sloping (5 percent)
- Skaha soils (3 percent)
- Strat soils (2 percent)
- Stubblefield soils (2 percent)
- Tubspring soils (2 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

274—Quincy loamy fine sand, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,400 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 195 days

Map Unit Composition

Quincy and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Eolian sand
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 4e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 10 inches; loamy fine sand
10 to 60 inches; fine sand

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Pogue soils (5 percent)
- Quincy soils, bouldery surface (5 percent)

Major Uses

Irrigated cropland and livestock grazing

275—Quincy-DelRio-Sanbee complex, 20 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Quincy and similar soils: 35 percent
DelRio and similar soils: 25 percent
Sanbee and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces and kames on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Eolian sand
Slope range: 20 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; fine sand
6 to 60 inches; fine sand

Characteristics of DelRio Soil

Landscape position
Landform: North aspects of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over sandy glacial outwash
Slope range: 20 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 60 inches; fine sandy loam

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Eolian sand over glacial outwash
Slope range: 20 to 60 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; loamy fine sand
8 to 25 inches; sandy loam
25 to 30 inches; loamy coarse sand
30 to 60 inches; sand

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Zeemal soils (5 percent)
- Skaha soils (4 percent)
- Strat soils (4 percent)
- Simsfield soils (2 percent)

Major Use

Livestock grazing

276—Quincy-Ellisforde-Cashmere complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,600 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Quincy and similar soils: 50 percent
Ellisforde and similar soils: 25 percent
Cashmere and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian sand
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 10 inches; loamy fine sand
10 to 60 inches; fine sand

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 26 inches; very fine sandy loam
26 to 60 inches; stratified loamy very fine sand to silt loam

Characteristics of Cashmere Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 11 inches; fine sandy loam
11 to 24 inches; fine sandy loam
24 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Dune land (5 percent)
- Skaha soils (3 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

277—Quincy-Ellisforde-Cashmere complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,600 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Quincy and similar soils: 55 percent
Ellisforde and similar soils: 20 percent
Cashmere and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian sand
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 10 inches; loamy fine sand
10 to 60 inches; fine sand

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 30 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 26 inches; very fine sandy loam
26 to 60 inches; stratified loamy very fine sand to silt loam

Characteristics of Cashmere Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glaciofluvial deposits
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 11 inches; fine sandy loam
11 to 24 inches; fine sandy loam
24 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Dune land (5 percent)
- Skaha soils (3 percent)
- Torriorthents (2 percent)

Major Use

Livestock grazing

278—Quincy-Sanbee-DelRio complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Quincy and similar soils: 35 percent
Sanbee and similar soils: 25 percent
DelRio and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Quincy Soil

Landscape position
Landform: Terraces and kames on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Eolian sand
Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; fine sand
6 to 60 inches; fine sand

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand over glacial outwash
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; loamy fine sand
8 to 25 inches; sandy loam
25 to 30 inches; loamy coarse sand
30 to 60 inches; sand

Characteristics of DelRio Soil

Landscape position
Landform: Depressions and north aspects of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess over sandy glacial outwash
Slope range: 0 to 20 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 60 inches; fine sandy loam

Dissimilar Minor Components

- Dune land (5 percent)
- Skaha soils (5 percent)
- Stratford soils (5 percent)
- Tubspring soils (3 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

279—Ralls silt loam, 3 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,900 feet

Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ralls and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ralls Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 25 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 44 inches; silt loam
44 to 60 inches; gravelly clay loam

Dissimilar Minor Components

- Ralls soils, stony surface (10 percent)
- Ralls soils, steeper sloping (5 percent)

Major Use

Livestock grazing

280—Ralls silt loam, 25 to 55 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,600 to 2,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ralls and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Ralls Soil

Landscape position
Landform: Scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 25 to 55 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 13 inches; silt loam
13 to 44 inches; silt loam
44 to 60 inches; gravelly clay loam

Dissimilar Minor Components

- Kiona soils (10 percent)
- Ralls soils, stony surface (10 percent)

Major Use

Livestock grazing

281—Renshigh-Alstown-Renslow complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renshigh and similar soils: 35 percent
Alstown and similar soils: 30 percent
Renslow, cemented substratum, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Renshigh Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 4 inches; silt loam
4 to 21 inches; silt loam
21 to 57 inches; silt loam
57 to 60 inches; silt loam

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 22 inches; silt loam
22 to 29 inches; silt loam
29 to 48 inches; silt loam
48 to 60 inches; cemented material

Dissimilar Minor Components

- Horseflat soils (5 percent)
- Selah soils (2 percent)
- Terlan soils (2 percent)
- Zen soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

282—Renshigh-Alstown-Renslow complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renshigh and similar soils: 35 percent
Alstown and similar soils: 30 percent
Renslow, cemented substratum, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Renshigh Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 4 inches; silt loam
4 to 21 inches; silt loam
21 to 57 inches; silt loam
57 to 60 inches; silt loam

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 22 inches; silt loam
22 to 29 inches; silt loam
29 to 48 inches; silt loam
48 to 60 inches; cemented material

Dissimilar Minor Components

- Horseflat soils (3 percent)
- Haploxerolls (2 percent)
- Selah soils (2 percent)
- Terlan soils (2 percent)
- Zen soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

283—Renslow silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 0 to 8 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 23 inches; silt loam
23 to 41 inches; silt loam
41 to 60 inches; silt loam

Dissimilar Minor Components

- Renslow soils, steeper sloping (5 percent)
- Alstown soils (3 percent)
- Selah soils (3 percent)
- Willis soils (2 percent)
- Zen soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

284—Renslow silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 23 inches; silt loam
23 to 41 inches; silt loam
41 to 60 inches; silt loam

Dissimilar Minor Components

- Alstown soils (5 percent)
- Renslow soils, steeper sloping (5 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Willis soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

285—Renslow silt loam, 15 to 30 percent north slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 9 inches; silt loam
9 to 23 inches; silt loam
23 to 41 inches; silt loam
41 to 60 inches; silt loam

Dissimilar Minor Components

- Alstown soils (5 percent)
- Zen soils (5 percent)
- Selah soils (3 percent)
- Willis soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

286—Renslow silt loam, 15 to 30 percent south slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 23 inches; silt loam
23 to 41 inches; silt loam
41 to 60 inches; silt loam

Dissimilar Minor Components

- Alstown soils (5 percent)
- Renslow soils, steeper sloping (5 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Willis soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

287—Renslow silt loam, cemented substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam

15 to 22 inches; silt loam
22 to 29 inches; silt loam
29 to 48 inches; silt loam
48 to 60 inches; cemented material

Dissimilar Minor Components

- Alstown soils (5 percent)
- Renslow soils, steeper sloping (5 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Willis soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

288—Renslow silt loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 22 inches; silt loam

22 to 29 inches; silt loam
29 to 48 inches; silt loam
48 to 60 inches; cemented material

Dissimilar Minor Components

- Alstown soils (5 percent)
- Renslow soils, steeper sloping (5 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Willis soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

289—Renslow silt loam, cemented substratum, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; silt loam
15 to 22 inches; silt loam

22 to 29 inches; silt loam
29 to 48 inches; silt loam
48 to 60 inches; cemented material

Dissimilar Minor Components

- Alstown soils (5 percent)
- Renslow soils, steeper sloping (5 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Willis soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

290—Renslow-Achelake-Willis complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow, cemented substratum, and similar soils: 45 percent
Achelake and similar soils: 25 percent
Willis and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 15 inches; silt loam

15 to 29 inches; silt loam
29 to 45 inches; silt loam
45 to 60 inches; cemented material

Characteristics of Achelake Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 13.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 20 inches; ashy silt loam
20 to 60 inches; ashy silt loam

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam

17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Kester soils (5 percent)
- Toler soils (3 percent)
- Zen soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

291—Renslow-Achelake-Willis complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow, cemented substratum, and similar soils: 40 percent
Achelake and similar soils: 25 percent
Willis and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; silt loam
10 to 15 inches; silt loam

15 to 29 inches; silt loam
29 to 45 inches; silt loam
45 to 60 inches; cemented material

Characteristics of Achelake Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 13.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 20 inches; ashy silt loam
20 to 60 inches; ashy silt loam

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam

17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Kester soils (3 percent)
- Alsash soils (2 percent)
- Alstown soils (2 percent)
- Selah soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

292—Renslow-Alstown-Kester complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow, cemented substratum, and similar soils: 35 percent
Alstown and similar soils: 30 percent
Kester and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 15 inches; silt loam
15 to 29 inches; silt loam
29 to 45 inches; silt loam
45 to 60 inches; cemented material

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy sandy loam
25 to 32 inches; ashy sandy loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Corbaley soils (5 percent)
- Toler soils (3 percent)
- Deercut soils (2 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

293—Renslow-Alstown-Kester complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow, cemented substratum, and similar soils: 35 percent
Alstown and similar soils: 30 percent
Kester and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 15 inches; silt loam
15 to 29 inches; silt loam
29 to 45 inches; silt loam
45 to 60 inches; cemented material

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy sandy loam
25 to 32 inches; ashy sandy loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Corbaley soils (5 percent)
- Toler soils (3 percent)
- Deercut soils (2 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

294—Renslow-Alstown-Kester complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Renslow, cemented substratum, and similar soils: 35 percent
Alstown and similar soils: 30 percent
Kester and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Renslow Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; silt loam
10 to 15 inches; silt loam
15 to 29 inches; silt loam
29 to 45 inches; silt loam
45 to 60 inches; cemented material

Characteristics of Alstown Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 13 inches; silt loam
13 to 33 inches; silt loam
33 to 54 inches; very gravelly silt loam
54 to 60 inches; silt loam

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy sandy loam
25 to 32 inches; ashy sandy loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Corbaley soils (5 percent)
- Toler soils (3 percent)
- Deercut soils (2 percent)
- Selah soils (2 percent)
- Zen soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

295—Ritzville silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 19 inches; silt loam
19 to 26 inches; silt loam
26 to 40 inches; silt loam
40 to 50 inches; silt loam
50 to 60 inches; silt loam

Dissimilar Minor Components

- Benwy soils (5 percent)
- Ritzville soils, steeper sloping (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

296—Ritzville silt loam, 15 to 30 percent north slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: North aspect of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess
Slope range: 15 to 30 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 7 inches; silt loam
7 to 14 inches; silt loam
14 to 28 inches; silt loam

28 to 42 inches; silt loam
42 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Benwy soils (5 percent)
- Ritzville soils, steeper sloping (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

297—Ritzville silt loam, cemented substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive feature: 45 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 33 inches; silt loam
33 to 50 inches; silt loam
50 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Alstown soils (10 percent)
- Ritzville soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

298—Ritzville silt loam, cemented substratum, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 45 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 33 inches; silt loam
33 to 50 inches; silt loam
50 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Willis soils (10 percent)
- Ritzville soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

299—Ritzville silt loam, cemented substratum, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan
Slope range: 15 to 30 percent
Depth to restrictive feature: 45 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; silt loam
10 to 33 inches; silt loam
33 to 50 inches; silt loam
50 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Benwy soils (5 percent)
- Ritzville soils, steeper sloping (5 percent)
- Willis soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

300—Ritzville silt loam, cemented substratum, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Ritzville and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Ritzville Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan
Slope range: 30 to 65 percent
Depth to restrictive feature: 45 to 60 inches to weakly cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 10 inches; silt loam
10 to 33 inches; silt loam
33 to 50 inches; silt loam
50 to 60 inches; cemented silt loam

Dissimilar Minor Components

- Willis soils (10 percent)
- Alstown soils (5 percent)

Major Use

Livestock grazing

301—Riverwash

Map Unit Composition

Riverwash: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Riverwash

Description of areas: Recent alluvial deposits of sandy, silty, gravelly, and cobbly sediment
Position on landform: Flood plains that have slopes of less than 3 percent
Frequency of flooding: Frequent most of the year
Water table: High most of the year
Land capability class: 8

Dissimilar Minor Components

- Aquolls (3 percent)
- Beverly soils (3 percent)
- Alecanyon soils (2 percent)
- Haploxerolls (2 percent)
- Logy soils (2 percent)
- Cachebutte soils (1 percent)
- Strat soils (1 percent)
- Tubspring soils (1 percent)

302—Rock outcrop-Couleedam-Roosevelt complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Rock outcrop: 35 percent
Couleedam and similar soils: 30 percent
Roosevelt and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Characteristics of Couleedam Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; very stony sandy loam
4 to 9 inches; very cobbly sandy loam
9 to 16 inches; very cobbly sandy loam
16 to 26 inches; unweathered bedrock

Characteristics of Roosevelt Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 26 inches; fine sandy loam
26 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Rubble land (5 percent)
- Conconully soils (4 percent)
- Peshastin soils (3 percent)
- Wellsdam soils (3 percent)

Major Use

Livestock grazing

303—Rock outcrop-Ginnis-Swakane complex, 30 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 3,000 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Rock outcrop: 35 percent
Ginnis and similar soils: 30 percent
Swakane and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Characteristics of Ginnis Soil

Landscape position
Landform: North aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; fine sandy loam
10 to 20 inches; sandy loam
20 to 29 inches; sandy loam
29 to 35 inches; gravelly sandy loam
35 to 45 inches; weathered bedrock

Characteristics of Swakane Soil

Landscape position
Landform: South aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 13 inches; very gravelly loam
13 to 18 inches; extremely gravelly sandy loam
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Wagberg soils (5 percent)
- Willock soils, granite substratum (5 percent)

Major Use

Livestock grazing

304—Roloff-Bakeoven complex, 5 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Roloff and similar soils: 50 percent
Bakeoven and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Roloff Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess over basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 11 inches; silt loam
11 to 17 inches; silt loam
17 to 29 inches; silt loam
29 to 33 inches; unweathered bedrock

Characteristics of Bakeoven Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 5 to 25 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very cobbly loam
7 to 17 inches; unweathered bedrock

Dissimilar Minor Components

- Lickskillet soils (10 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

305—Royal loamy fine sand, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 900 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Royal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Royal Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 10 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 10 inches; loamy fine sand
10 to 16 inches; very fine sandy loam
16 to 60 inches; stratified fine sand to very fine sandy loam

Dissimilar Minor Components

- Burbank soils (10 percent)
- Royal soils, steeper sloping (5 percent)

Major Uses

Irrigated cropland and livestock grazing

306—Rubble land-Rock outcrop complex, very steep

Map Unit Composition

Rubble land: 55 percent
Rock outcrop: 45 percent

Characteristics of Rubble Land

Description of areas: Colluvial deposits of gravel, cobbles, stones, and boulders typically underlain by basalt below a depth of 40 inches (fig. 8)
Soil material between voids: Little or none
Slope range: 25 to 70 percent
Land capability class: 8

Characteristics of Rock Outcrop

Description of areas: Exposures of barren bedrock (fig. 8)
Slope range: 25 to 70 percent
Land capability class: 8



Figure 8.—Escarpment slope of an upland plateau. Rubble land-Rock outcrop complex, very steep, on upper part of slope, and Cheviot-Ralls-Grinrod complex, 15 to 30 percent slopes, on lower part.

307—Rubble land-Stemilt-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 2,000 to 4,200 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 44 to 46 degrees F
Frost-free period: 75 to 120 days

Map Unit Composition

Rubble land: 45 percent
Stemilt and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Rubble Land

Description of areas: Colluvial deposits of gravel, cobbles, stones, and boulders typically underlain by basalt below a depth of 40 inches
Kind of rock fragments: Typically basalt
Soil material between voids: Little or none
Position on landform: All slopes
Land capability class: 8

Characteristics of Stemilt Soil

Landscape position
Landform: Draws and depressions of scarp slopes of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 9 inches; stony ashy loam
9 to 18 inches; cobbly ashy loam
18 to 40 inches; extremely cobbly clay loam
40 to 60 inches; extremely cobbly clay loam

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Shinn soils (10 percent)
- Stemilt soils, bouldery surface (5 percent)

Major Uses

Livestock grazing and forestry

308—Sagehill very fine sandy loam, 10 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Sagehill and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sagehill Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 10 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 19 inches; very fine sandy loam
19 to 60 inches; stratified fine sandy loam to silt loam

Dissimilar Minor Components

- Quincy soils (5 percent)
- Royal soils (5 percent)
- Sagehill soils, steeper sloping (5 percent)

Major Uses

Irrigated cropland and livestock grazing

309—Sanbee loamy fine sand, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sanbee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand over glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 14 to 20 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; loamy fine sand
7 to 19 inches; sandy loam
19 to 60 inches; fine sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Sanbee soils, steeper sloping (5 percent)
- Skaha soils (3 percent)
- Strat soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

310—Sanbee ashy sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sanbee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy sandy loam
8 to 12 inches; ashy sandy loam
12 to 60 inches; fine sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Sanbee soils, loamy fine sand surface (5 percent)
- Sanbee soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

311—Sanbee ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sanbee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 30 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 14 inches; ashy sandy loam
14 to 28 inches; ashy sandy loam
28 to 37 inches; loamy coarse sand
37 to 60 inches; sand

Dissimilar Minor Components

- Sanbee soils, loamy fine sand surface (5 percent)
- Sanbee soils, steeper sloping (5 percent)
- Quincy soils (2 percent)
- Strat soils (2 percent)
- Skaha soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

312—Sanbee-Quincy complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sanbee and similar soils: 60 percent
Quincy and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Sanbee Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand and volcanic ash over glacial outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy sandy loam
8 to 12 inches; ashy sandy loam
12 to 60 inches; fine sand

Characteristics of Quincy Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand
Slope range: 0 to 3 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; fine sand
6 to 42 inches; loamy fine sand
42 to 54 inches; fine sand
54 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Halaquepts (5 percent)
- Skaha soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

313—Schawana complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Schawana and similar soils: 45 percent
Schawana, cobbly, and similar soils: 35 percent
Dissimilar minor components: 20 percent

Characteristics of Schawana Soil

Landscape position
Landform: Strath terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Eolian sand mixed with basaltic rock fragments over basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 6-9 PZ (R007XY301WA)

Typical profile
0 to 3 inches; loamy fine sand
3 to 12 inches; gravelly loamy very fine sand
12 to 22 inches; unweathered bedrock

Characteristics of Schawana Soil, Cobbly

Landscape position
Landform: Strath terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian sand mixed with basaltic rock fragments over basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 6-9 PZ (R007XY301WA)

Typical profile
0 to 3 inches; cobbly loamy fine sand
3 to 12 inches; gravelly very fine sandy loam
12 to 22 inches; unweathered bedrock

Dissimilar Minor Components

- Prosser soils (5 percent)
- Quincy soils (5 percent)

- Rock outcrop (5 percent)
- Schawana soils, very stony surface (5 percent)

Major Use

Livestock grazing

314—Selah silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Selah and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Selah Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 16 inches; silt loam
16 to 23 inches; silt loam
23 to 31 inches; silt loam
31 to 35 inches; cemented material
35 to 40 inches; stratified cemented material ranging to silt loam
40 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Selah soils, steeper sloping (5 percent)
- Taunton soils (5 percent)
- Renslow soils (3 percent)
- Benwy soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

315—Sevar ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Sevar and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sevar Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy loam
10 to 24 inches; silty clay loam
24 to 28 inches; silt loam
28 to 32 inches; cemented material
32 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

- Dougville soils (5 percent)
- Sevar soils, steeper sloping (5 percent)
- Silico soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

316—Shinn-Lorena complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Map Unit Composition

Shinn and similar soils: 50 percent
Lorena and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Shinn Soil

Landscape position
Landform: Intermounds of mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very gravelly loam
4 to 10 inches; very gravelly loam
10 to 14 inches; unweathered bedrock

Characteristics of Lorena Soil

Landscape position
Landform: Mounds on mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess over residuum derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 15+ PZ (R006XY102WA)

Typical profile
0 to 12 inches; silt loam
12 to 25 inches; silt loam
25 to 35 inches; unweathered bedrock

Dissimilar Minor Component

- Rock outcrop (10 percent)

Major Use

Livestock grazing

317—Silico ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Silico and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Silico Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 12 inches; ashy fine sandy loam
12 to 16 inches; cemented material
16 to 21 inches; stratified cemented material ranging to silt loam
21 to 31 inches; unweathered bedrock

Dissimilar Minor Components

- Silico soils, steeper sloping (5 percent)
- Argabak soils (2 percent)
- Dutchenry soils (2 percent)
- Jordy soils (2 percent)
- Sevar soils (2 percent)
- Slickear soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

318—Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Silico and similar soils: 40 percent
Sevar and similar soils: 25 percent
Dutchenry and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Silico Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 12 inches; ashy fine sandy loam
12 to 16 inches; cemented material
16 to 21 inches; stratified cemented material ranging to silt loam
21 to 31 inches; unweathered bedrock

Characteristics of Sevar Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy loam
10 to 24 inches; silty clay loam
24 to 28 inches; silt loam
28 to 32 inches; cemented material
32 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils, cemented substratum (5 percent)
- Dougville soils (5 percent)
- Norax soils (3 percent)
- Slickear soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

319—Silico-Sevar-Dutchenry complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Silico and similar soils: 40 percent
Sevar and similar soils: 25 percent
Dutchenry and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Silico Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt

Slope range: 8 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 12 inches; ashy fine sandy loam
12 to 16 inches; cemented material
16 to 21 inches; stratified cemented material ranging to silt loam
21 to 31 inches; unweathered bedrock

Characteristics of Sevar Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy loam
10 to 24 inches; silty clay loam
24 to 28 inches; silt loam
28 to 32 inches; cemented material
32 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (5 percent)
- Dougville soils (5 percent)
- Norax soils (3 percent)
- Slickear soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

320—Silico-Sevar-Dutchenry complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Silico and similar soils: 40 percent
Sevar and similar soils: 25 percent
Dutchenry and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Silico Soil

Landscape position
Landform: South aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 12 inches; ashy fine sandy loam
12 to 16 inches; cemented material
16 to 21 inches; stratified cemented material ranging to silt loam
21 to 31 inches; unweathered bedrock

Characteristics of Sevar Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 10 inches; ashy loam

10 to 24 inches; silty clay loam
24 to 28 inches; silt loam
28 to 32 inches; cemented material
32 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Characteristics of Dutchenry Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 15 inches; ashy fine sandy loam
15 to 33 inches; ashy fine sandy loam
33 to 37 inches; cemented material
37 to 42 inches; stratified cemented material ranging to silt loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (3 percent)
- Dougville soils (3 percent)
- Nemire soils (3 percent)
- Norax soils (3 percent)
- Slickear soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

321—Simsfield ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Depressions of terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Dissimilar Minor Components

- Aquolls (4 percent)
- Simsfield soils, steeper sloping (3 percent)
- DelRio soils (2 percent)
- St. Andrews soils (2 percent)
- Touhey soils (2 percent)
- Strat soils (1 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

322—Simsfield ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet

Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Depressions of terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- DelRio soils (2 percent)
- Simsfield soils, steeper sloping (2 percent)
- St. Andrews soils (2 percent)
- Strat soils (2 percent)
- Touhey soils (1 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

323—Simsfield ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet

Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Simsfield soils, steeper sloping (5 percent)
- DelRio soils (2 percent)
- Strat soils (2 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

324—Simsfield-Ellisforde-DelRio complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 35 percent
Ellisforde and similar soils: 30 percent
DelRio and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Depressions of terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Characteristics of Ellisforde Soil

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 10.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; very fine sandy loam
8 to 18 inches; very fine sandy loam
18 to 60 inches; stratified very fine sandy loam to silt loam

Characteristics of DelRio Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over sandy glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 44 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 45 inches; ashy fine sandy loam
45 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Quincy soils (2 percent)
- Sanbee soils (2 percent)
- Strat soils (2 percent)
- Stubblefield soils (2 percent)
- Touhey soils (2 percent)
- Tubspring soils (2 percent)
- Aquolls (1 percent)
- Halaquepts (1 percent)
- Haploxerolls (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

325—Simsfield-Zeemal complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet

Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 50 percent
Zeemal and similar soils: 30 percent
Dissimilar minor components: 20 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Depressions of terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Characteristics of Zeemal Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 17 inches; cemented sandy loam
17 to 33 inches; silt loam
33 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (10 percent)
- St. Andrews soils (2 percent)
- Strat soils (2 percent)
- Touhey soils (2 percent)
- Tubspring soils (2 percent)
- Aquolls (1 percent)
- DelRio soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

326—Simsfield-Zeemal complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Simsfield and similar soils: 60 percent
Zeemal and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Simsfield Soil

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 8 to 30 percent
Depth to restrictive feature: 20 to 40 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 18 inches; ashy loam
18 to 28 inches; silt loam
28 to 34 inches; cemented silt loam
34 to 60 inches; silt loam

Characteristics of Zeemal Soil

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 8 to 30 percent
Depth to restrictive feature: 10 to 20 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 17 inches; cemented sandy loam
17 to 33 inches; silt loam
33 to 60 inches; silty clay loam

Dissimilar Minor Components

- DelRio soils (3 percent)
- Halaquepts (3 percent)
- Strat soils (2 percent)
- Tubspring soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

327—Siweeka complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka and similar soils: 45 percent
Siweeka, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; cobbly ashy sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (3 percent)
- Haploxerolls (3 percent)
- Nespelem soils (3 percent)
- Alecanyon soils (2 percent)
- Cachebutte soils (2 percent)
- Nemire soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

328—Siweeka complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka and similar soils: 45 percent
Siweeka, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; cobbly ashy sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Nespelem soils (5 percent)
- Siweeka soils, steeper sloping (5 percent)
- Alecanyon soils (3 percent)
- Cachebutte soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

329—Siweeka complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka and similar soils: 45 percent
Siweeka, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; cobbly ashy sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Nespelem soils (5 percent)
- Siweeka soils, steeper sloping (5 percent)
- Alecanyon soils (3 percent)
- Cachebutte soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

330—Siweeka-Argabak complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 65 percent
Argabak and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Aquolls (2 percent)
- Halaquepts (2 percent)
- Haploxerolls (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

331—Siweeka-Argabak-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 55 percent
Argabak and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt

Slope range: 15 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Dezellem soils (10 percent)

Major Use

Livestock grazing

332—Siweeka-Argabak-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 55 percent
Argabak and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt

Slope range: 30 to 65 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Brazlan soils (5 percent)
- Dezellem soils (5 percent)

Major Use

Livestock grazing

333—Siweeka-Brazlan complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 55 percent
Brazlan and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Mounds on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)
- Haploxerolls (3 percent)
- Aquolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

334—Siweeka-Brazlan complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 55 percent
Brazlan and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Mounds on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)
- Haploxerolls (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

335—Siweeka-Brazlan complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 50 percent
Brazlan and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Cachebutte soils (5 percent)
- Dezellem soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

336—Siweeka-Brazlan-Brazlan extremely bouldery complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,200 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 40 percent
Brazlan and similar soils: 25 percent
Brazlan, extremely bouldery, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly ashy fine sandy loam
8 to 12 inches; very gravelly ashy loam
12 to 20 inches; very gravelly loam
20 to 34 inches; cemented gravelly coarse sandy loam
34 to 38 inches; unweathered bedrock

Characteristics of Brazlan Soil, Extremely Bouldery

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; extremely bouldery fine sandy loam
5 to 13 inches; very gravelly loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

337—Siweeka-Brazlan-Argabak complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 40 percent
Brazlan and similar soils: 25 percent
Argabak and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 20 inches; very gravelly loam
20 to 24 inches; very gravelly sandy loam
24 to 32 inches; cemented gravelly coarse sandy loam
32 to 36 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Aquolls (3 percent)

- Timentwa soils, bedrock substratum (3 percent)
- Alecanyon soils (2 percent)
- Haploxerolls (2 percent)

Major Use

Livestock grazing

338—Siweeka-Lickskillet-Argabak complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 50 percent
Lickskillet and similar soils: 20 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 20 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 27 inches; gravelly ashy fine sandy loam
27 to 39 inches; gravelly sandy loam
39 to 43 inches; cemented material
43 to 47 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 6 inches; very cobbly loam
6 to 12 inches; very gravelly loam
12 to 18 inches; very gravelly loam
18 to 22 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (3 percent)
- Heytou soils (3 percent)

- Tubspring soils (3 percent)
- Haploxerolls (2 percent)
- Strat soils (2 percent)
- Stubblefield soils (2 percent)

Major Use

Livestock grazing

339—Siweeka-Stubblefield-Timentwa complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 40 percent
Stubblefield and similar soils: 30 percent
Timentwa and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 27 inches; gravelly ashy fine sandy loam
27 to 39 inches; gravelly sandy loam
39 to 43 inches; cemented material
43 to 47 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 12 inches; very cobbly fine sandy loam
12 to 22 inches; very cobbly fine sandy loam
22 to 30 inches; very cobbly sandy loam
30 to 41 inches; cemented material
41 to 60 inches; gravelly fine sandy loam

Characteristics of Timentwa Soil

Landscape position
Landform: Depressions of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 33 inches; ashy loam

33 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Dissimilar Minor Components

- Aquolls (3 percent)
- Lickskillet soils (3 percent)
- Tubspring soils (3 percent)
- Argabak soils (2 percent)
- Haploxerolls (2 percent)
- Strat soils (2 percent)

Major Use

Livestock grazing

340—Siweeka-Timentwa-Dezellem complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,700 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Siweeka, bedrock substratum, and similar soils: 40 percent
Timentwa and similar soils: 25 percent
Dezellem and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Characteristics of Timentwa Soil

Landscape position
Landform: Depressions of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 27 inches; ashy loam
27 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Dezellem Soil

Landscape position
Landform: Till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very stony ashy fine sandy loam
9 to 30 inches; very gravelly sandy loam
30 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Aquolls (3 percent)
- Brazlan soils (3 percent)
- Lickskillet soils (3 percent)
- Alecanyon soils (2 percent)
- Argabak soils (2 percent)
- Haploxerolls (2 percent)

Major Use

Livestock grazing

341—Siweeka-Timentwa-Stubblefield complex, 15 to 40 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Siweeka and similar soils: 35 percent
Timentwa and similar soils: 30 percent
Stubblefield and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 40 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 31 inches; cobbly sandy loam
31 to 40 inches; cemented material
40 to 60 inches; very cobbly sandy loam

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 40 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 33 inches; ashy loam
33 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds and depressions of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 15 to 40 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 9 inches; very stony fine sandy loam
9 to 15 inches; very gravelly fine sandy loam
15 to 27 inches; very gravelly fine sandy loam
27 to 57 inches; cemented material
57 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Components

- Couleedam soils (2 percent)
- Haploxerolls (2 percent)
- Soaplake soils (2 percent)
- Heytou soils (1 percent)
- Siweeka soils (1 percent)
- Strat soils (1 percent)
- Stubblefield soils (1 percent)

Major Use

Livestock grazing

342—Skaha cobbly loamy sand, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 700 to 1,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Skaha and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Skaha Soil

Landscape position
Landform: Moses Coulee and terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; cobbly loamy sand
6 to 15 inches; cobbly loamy sand
15 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

- Pogue soils (5 percent)
- Quincy soils (5 percent)
- Beverly soils (3 percent)
- Peshastin soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

343—Skaha very cobbly loamy sand, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Skaha and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Skaha Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 8 inches; very cobbly loamy sand
8 to 22 inches; extremely gravelly loamy coarse sand
22 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Skaha soils, steeper sloping (5 percent)
- Heytou soils (2 percent)
- Touhey soils (2 percent)
- Stubblefield soils (1 percent)

Major Use

Livestock grazing

344—Skaha very cobbly loamy sand, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,000 to 2,400 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 190 days

Map Unit Composition

Skaha and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Skaha Soil

Landscape position
Landform: Terrace escarpments on glaciated plateaus and Columbia River terraces
Geomorphic position (three-dimensional): Side slopes and risers

Properties and qualities
Parent material: Glacial outwash
Slope range: 30 to 65 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 8 inches; very cobbly loamy sand
8 to 22 inches; extremely gravelly loamy coarse sand
22 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Skaha soils, steeper sloping (5 percent)
- Heytou soils (2 percent)
- Touhey soils (2 percent)
- Stubblefield soils (1 percent)

Major Use

Livestock grazing

345—Skaha-Quincy complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Skaha and similar soils: 50 percent
Quincy and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Skaha Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 8 inches; very cobbly loamy sand
8 to 22 inches; extremely gravelly loamy coarse sand
22 to 60 inches; very gravelly coarse sand

Characteristics of Quincy Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Eolian sand
Slope range: 3 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; fine sand
6 to 42 inches; loamy fine sand
42 to 54 inches; fine sand
54 to 60 inches; loamy fine sand

Dissimilar Minor Components

- Stratford soils (3 percent)
- Stubblefield soils (3 percent)
- Touhey soils (2 percent)
- Tubspring soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

346—Skaha-Tubspring complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,400 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Skaha and similar soils: 60 percent
Tubspring and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Skaha Soil

Landscape position
Landform: Terraces on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash (fig. 9)
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 9 inches; gravelly fine sandy loam
9 to 60 inches; very gravelly coarse sand

Characteristics of Tubspring Soil

Landscape position
Landform: Mounds and swales of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with glacial outwash over glacial outwash (fig. 9)
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None



Figure 9.—Area of Skaha-Tubspring complex, 0 to 8 percent slopes, in an area of glacial outwash deposits in Moses Coulee.

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 35 inches; fine sandy loam
35 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

- Strat soils (5 percent)
- Skaha soils, very stony surface (4 percent)
- DelRio soils (2 percent)
- Haploxerolls (2 percent)
- Xerofluvents (2 percent)

Major Use

Livestock grazing

347—Slickear ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Slickear and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slickear Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 22 inches; ashy fine sandy loam
22 to 46 inches; silty clay loam
46 to 50 inches; cemented material
50 to 55 inches; stratified cemented material ranging to silt loam
55 to 59 inches; unweathered bedrock

Dissimilar Minor Components

- Norax soils (5 percent)
- Slickear soils, steeper sloping (5 percent)
- Dutchenry soils (2 percent)
- Sevar soils (2 percent)
- Silico soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

348—Slickear ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Slickear and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slickear Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 17
Available water capacity (entire profile): High (about 9.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 22 inches; ashy fine sandy loam
22 to 46 inches; silty clay loam
46 to 50 inches; cemented material
50 to 55 inches; stratified cemented material ranging to silt loam
55 to 59 inches; unweathered bedrock

Dissimilar Minor Components

- Slickear soils, steeper sloping (4 percent)
- Bagdad soils (3 percent)
- Norax soils (3 percent)
- Dutchenry soils (2 percent)
- Farmer soils (2 percent)
- Sevar soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

349—Slusser ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slusser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 20 inches; silt loam
20 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Slusser soils, steeper sloping (4 percent)
- Alsash soils (3 percent)
- Toler soils (3 percent)
- Alstown soils (2 percent)
- Deercut soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

350—Slusser ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slusser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 20 inches; silt loam
20 to 52 inches; silt loam
52 to 60 inches; silt loam

Dissimilar Minor Components

- Toler soils (5 percent)
- Alsash soils (3 percent)
- Slusser soils, steeper sloping (3 percent)
- Alstown soils (2 percent)
- Corbaley soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

351—Slusser ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slusser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 12 inches; ashy silt loam
12 to 22 inches; silt loam
22 to 46 inches; silt loam
46 to 58 inches; silt loam
58 to 60 inches; cemented material

Dissimilar Minor Components

- Slusser soils, steeper sloping (4 percent)
- Alsash soils (3 percent)
- Toler soils (3 percent)
- Alstown soils (2 percent)
- Deercut soils (2 percent)
- Sprauer soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

352—Slusser ashy fine sandy loam, cemented substratum, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slusser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 30 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 12 inches; ashy silt loam
12 to 22 inches; silt loam
22 to 46 inches; silt loam
46 to 58 inches; silt loam
58 to 60 inches; cemented material

Dissimilar Minor Components

- Alsash soils (3 percent)
- Deercut soils (3 percent)
- Slusser soils, steeper sloping (3 percent)
- Alstown soils (2 percent)
- Sprauer soils (2 percent)
- Toler soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

353—Slusser ashy fine sandy loam, indurated substratum, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Slusser Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 60 inches to indurated duripan; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 41 inches; silt loam
41 to 45 inches; cemented material
45 to 50 inches; stratified cemented material ranging to silt loam
50 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Slusser soils, steeper sloping (5 percent)
- Deercut soils (3 percent)
- Toler soils (3 percent)
- Sprauer soils (2 percent)
- Zen soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

354—Slusser-Alsash-Nemire complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser, cemented substratum, and similar soils: 40 percent
Alsash and similar soils: 30 percent
Nemire, moist, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Slusser Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 12 inches; ashy silt loam
12 to 22 inches; silt loam
22 to 46 inches; silt loam
46 to 58 inches; silt loam
58 to 60 inches; cemented material

Characteristics of Alsash Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 60 inches; very gravelly fine sandy loam

Characteristics of Nemire Soil, Moist

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 3 to 5 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 60 to 72 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 13 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 20 inches; ashy sandy loam
20 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

- Corbaley soils (3 percent)
- Deercut soils (3 percent)
- Toler soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

355—Slusser-Alsash-Nemire complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Slusser, cemented substratum, and similar soils: 40 percent
Alsash and similar soils: 30 percent
Nemire and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Slusser Soil, Cemented Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 12 inches; ashy silt loam
12 to 22 inches; silt loam
22 to 46 inches; silt loam
46 to 58 inches; silt loam
58 to 60 inches; cemented material

Characteristics of Alsash Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 11 inches; ashy fine sandy loam
11 to 28 inches; silt loam
28 to 60 inches; very gravelly fine sandy loam

Characteristics of Nemire Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 8 to 15 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 13 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 20 inches; ashy sandy loam
20 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

- Corbaley soils (3 percent)
- Deercut soils (3 percent)
- Toler soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

356—Soaplake-Roosevelt-Rock outcrop complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Soaplake and similar soils: 40 percent
Roosevelt and similar soils: 30 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Soaplake Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 0 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; fine sandy loam
4 to 12 inches; fine sandy loam
12 to 22 inches; unweathered bedrock

Characteristics of Roosevelt Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 0 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 26 inches; fine sandy loam
26 to 36 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Chelan soils (5 percent)
- Peshastin soils (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

357—Soaplake-Roosevelt-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Soaplake and similar soils: 50 percent
Roosevelt and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Soaplake Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; fine sandy loam
4 to 12 inches; fine sandy loam
12 to 22 inches; unweathered bedrock

Characteristics of Roosevelt Soil

Landscape position
Landform: Scarp slopes of plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 26 inches; fine sandy loam
26 to 36 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Chelan soils (4 percent)
- Peshastin soils (4 percent)
- Rubble land (2 percent)

Major Use

Livestock grazing

358—Sprauer ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sprauer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sprauer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 22 inches; ashy fine sandy loam
22 to 30 inches; ashy fine sandy loam
30 to 40 inches; cemented material
40 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Sprauer soils, steeper sloping (5 percent)
- Aarup soils (3 percent)
- Corbaley soils (3 percent)
- Kester soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

359—Sprauer ashy fine sandy loam, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Sprauer and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Sprauer Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 8 to 30 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 22 inches; ashy fine sandy loam
22 to 30 inches; ashy fine sandy loam
30 to 40 inches; cemented material
40 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Sprauer soils, steeper sloping (5 percent)
- Aarup soils (3 percent)
- Corbaley soils (3 percent)
- Kester soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

360—St. Andrews ashy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

St. Andrews and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of St. Andrews Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glaciolacustrine deposits over a duripan over dense glacial till
Slope range: 0 to 3 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 21 to 50 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 7 inches; ashy loam
7 to 14 inches; ashy silt loam
14 to 29 inches; silt loam
29 to 33 inches; cemented material
33 to 60 inches; gravelly coarse sandy loam

Dissimilar Minor Components

- St. Andrews soils, steeper sloping (5 percent)
- Aquolls (3 percent)
- Elvedere soils (3 percent)
- Haploxerolls (2 percent)
- Leahy soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

361—St. Andrews ashy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

St. Andrews and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of St. Andrews Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glaciolacustrine deposits over a duripan over dense glacial till
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 21 to 50 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 3 millimhos per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 7 inches; ashy loam
7 to 14 inches; ashy silt loam
14 to 29 inches; silt loam
29 to 33 inches; cemented material
33 to 60 inches; gravelly coarse sandy loam

Dissimilar Minor Components

- St. Andrews soils, steeper sloping (5 percent)
- Stubblefield soils (5 percent)
- Aquolls (3 percent)
- Haploxerolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

362—Starbuck-Bakeoven-Rock outcrop complex, 0 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,700 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Starbuck and similar soils: 35 percent
Bakeoven and similar soils: 30 percent
Rock outcrop: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Starbuck Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 0 to 45 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline

Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 5 inches; stony very fine sandy loam
5 to 15 inches; fine sandy loam
15 to 25 inches; unweathered bedrock

Characteristics of Bakeoven Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 45 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 7 inches; very cobbly loam
7 to 17 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Halaquepts (5 percent)
- Strat soils (5 percent)
- Roloff soils (3 percent)
- Zen soils (2 percent)

Major Use

Livestock grazing

363—Stemilt-Cordy complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 75 to 120 days

Map Unit Composition

Stemilt and similar soils: 65 percent
Cordy and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Stemilt Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Flanks

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 9 inches; stony ashy loam
9 to 18 inches; cobbly ashy loam
18 to 40 inches; extremely cobbly clay loam
40 to 60 inches; extremely cobbly clay loam

Characteristics of Cordy Soil

Landscape position
Landform: Mountains
Geomorphic position (three-dimensional): Bases

Properties and qualities
Parent material: Loess and volcanic ash over older loess
Slope range: 30 to 60 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very high (about 12.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Festuca idahoensis (F006XY802WA)

Typical profile
0 to 16 inches; ashy loam
16 to 21 inches; ashy loam
21 to 60 inches; silt loam

Dissimilar Minor Components

- Leidl soils (5 percent)
- Camaspatch soils (3 percent)
- Shinn soils (2 percent)

Major Uses

Livestock grazing and forestry

364—Strat very cobbly sandy loam, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus (fig. 10)
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 10 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)



Figure 10.—Area of Strat very cobbly sandy loam, 0 to 10 percent slopes, on an esker on a glaciated plateau.

Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; very cobbly sandy loam
8 to 18 inches; very cobbly sandy loam
18 to 27 inches; very cobbly sandy loam
27 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)
- Strat soils, steeper sloping (3 percent)
- Touhey soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

365—Strat very cobbly sandy loam, 10 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 10 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; very cobbly sandy loam
8 to 18 inches; very cobbly sandy loam
18 to 27 inches; very cobbly sandy loam
27 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Strat soils, steeper sloping (5 percent)
- Strat soils, very stony surface (5 percent)
- Heytou soils (2 percent)
- Stubblefield soils (2 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

366—Strat very cobbly sandy loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 30 to 65 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly sandy loam
8 to 18 inches; very cobbly sandy loam
18 to 27 inches; very cobbly sandy loam
27 to 60 inches; extremely cobbly coarse sand

Dissimilar Minor Components

- Strat soils, very stony surface (4 percent)
- Heytou soils (3 percent)
- Strat soils, steeper sloping (3 percent)
- Stubblefield soils (3 percent)
- Touhey soils (2 percent)

Major Use

Livestock grazing

367—Strat cobbly loam, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 1,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; cobbly loam
8 to 23 inches; very cobbly loam
23 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Beverly soils (5 percent)
- Roloff soils (5 percent)
- Strat soils, steeper sloping (5 percent)

Major Use

Livestock grazing

368—Strat stony loam, 0 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 25 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; stony loam
8 to 23 inches; very cobbly loam
23 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Roloff soils (10 percent)
- Beverly soils (5 percent)

Major Use

Livestock grazing

369—Strat silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces and outwash plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; silt loam
9 to 24 inches; very cobbly loam
24 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

- Strat soils, very stony surface (5 percent)
- Skaha soils (3 percent)
- Strat soils, steeper sloping (3 percent)
- Heytou soils (2 percent)
- Stubblefield soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

370—Strat very stony silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces and outwash plains of Moses Coulee
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 8 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 10 inches; very stony silt loam
10 to 22 inches; very cobbly loam
22 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

- Strat soils, steeper sloping (5 percent)
- Stratford soils (3 percent)
- Stubblefield soils (2 percent)
- Touhey soils (2 percent)
- Tubspring soils (2 percent)
- Heytou soils (1 percent)

Major Use

Livestock grazing

371—Strat-Tubspring complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 50 percent
Tubspring and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 8 percent

Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; cobbly sandy loam
9 to 20 inches; very cobbly loam
20 to 60 inches; extremely gravelly sand

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 20 inches; ashy sandy loam
20 to 31 inches; gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Aquolls (2 percent)
- Haploxerolls (2 percent)
- Heytou soils (1 percent)
- Simsfield soils (1 percent)
- Skaha soils (1 percent)
- St. Andrews soils (1 percent)

- Stubblefield soils (1 percent)
- Zeemal soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

372—Strat-Tubspring complex, 8 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 50 percent
Tubspring and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 8 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; cobbly sandy loam
9 to 20 inches; very cobbly loam
20 to 60 inches; extremely gravelly sand

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 8 to 30 percent

Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 20 inches; ashy sandy loam
20 to 31 inches; gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Simsfield soils (3 percent)
- Heytou soils (2 percent)
- St. Andrews soils (2 percent)
- Zeemal soils (2 percent)
- Stubblefield soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

373—Strat-Tubspring-DelRio complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 35 percent
Tubspring and similar soils: 25 percent
DelRio and similar soils: 20 percent
Dissimilar minor components: 20 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 18 inches; cobbly ashy sandy loam
18 to 25 inches; very gravelly sandy loam
25 to 60 inches; extremely gravelly coarse sand

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial outwash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 35 inches; fine sandy loam
35 to 60 inches; very gravelly coarse sand

Characteristics of DelRio Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 14 inches; ashy fine sandy loam
14 to 60 inches; ashy fine sandy loam

Dissimilar Minor Components

- Haploxerolls (3 percent)
- Heytou soils (3 percent)
- Skaha soils (3 percent)
- Touhey soils (3 percent)
- Aquolls (2 percent)
- Strat soils (2 percent)
- Stubblefield soils (2 percent)
- Xerofluvents (2 percent)

Major Use

Livestock grazing

374—Strat-Tubspring-Nemire complex, 0 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 35 percent
Tubspring and similar soils: 30 percent
Nemire and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; very cobbly sandy loam
8 to 36 inches; very gravelly fine sandy loam
36 to 60 inches; extremely gravelly sand

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and eskers of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 36 inches; ashy sandy loam
36 to 60 inches; extremely gravelly coarse sand

Characteristics of Nemire Soil

Landscape position
Landform: Depressions and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 40 inches; ashy fine sandy loam
40 to 60 inches; stratified gravelly fine sand to fine sandy loam

Dissimilar Minor Components

- Haploxerolls (3 percent)
- Heytou soils (3 percent)
- Simsfield soils (3 percent)
- Aquolls (2 percent)
- Stubblefield soils (2 percent)
- Zeemal soils (2 percent)

Major Use

Livestock grazing

375—Strat-Tubspring-Skaha complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,400 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Strat and similar soils: 35 percent
Tubspring and similar soils: 30 percent
Skaha and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 18 inches; cobbly ashy sandy loam
18 to 25 inches; very gravelly sandy loam
25 to 60 inches; extremely gravelly coarse sand

Characteristics of Tubspring Soil

Landscape position
Landform: Mounds and depressions of terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial outwash over glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 35 inches; fine sandy loam
35 to 60 inches; very gravelly coarse sand

Characteristics of Skaha Soil

Landscape position
Landform: Terraces and kames of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 15 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 9 inches; gravelly fine sandy loam
9 to 60 inches; very gravelly coarse sand

Dissimilar Minor Components

- DelRio soils (3 percent)
- Haploxerolls (2 percent)
- Heytou soils (2 percent)
- Skaha soils (2 percent)
- Strat soils (2 percent)
- Stubblefield soils (2 percent)
- Xerofluvents (2 percent)

Major Use

Livestock grazing

376—Stratford silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Stratford and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Stratford Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 18 inches; very fine sandy loam
18 to 22 inches; gravelly loam
22 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Stratford soils, steeper sloping (5 percent)
- Strat soils (3 percent)
- Horseflat soils (2 percent)
- Toler soils (2 percent)
- Tubspring soils (2 percent)
- Zen soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

377—Stratford silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Stratford and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Stratford Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 18 inches; very fine sandy loam
18 to 22 inches; gravelly loam
22 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Stratford soils, steeper sloping (5 percent)
- Strat soils (3 percent)
- Horseflat soils (2 percent)
- Toler soils (2 percent)
- Tubspring soils (2 percent)
- Zen soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

378—Stratford silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Stratford and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Stratford Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; silt loam
7 to 18 inches; very fine sandy loam
18 to 22 inches; gravelly loam
22 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Stratford soils, steeper sloping (5 percent)
- Strat soils (3 percent)
- Horseflat soils (2 percent)
- Toler soils (2 percent)
- Tubspring soils (2 percent)
- Zen soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

379—Stubblefield stony loam, 45 to 70 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 185 days

Map Unit Composition

Stubblefield and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Stubblefield Soil

Landscape position
Landform: Scarp slopes of till plains of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 45 to 70 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; stony loam
10 to 28 inches; very gravelly loam
28 to 38 inches; cemented material
38 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Components

- Cashmere soils (5 percent)
- Ellisforde soils (5 percent)
- Quincy soils (5 percent)

Major Use

Livestock grazing

380—Supplee ashy very fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Supplee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Supplee Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy very fine sandy loam
9 to 18 inches; ashy very fine sandy loam
18 to 27 inches; gravelly ashy very fine sandy loam
27 to 60 inches; extremely cobbly sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Strat soils (4 percent)
- Supplee soils, steeper sloping (4 percent)
- Cashmere soils (2 percent)

Major Use

Irrigated cropland

381—Supplee ashy very fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Supplee and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Supplee Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy very fine sandy loam
9 to 18 inches; ashy very fine sandy loam
18 to 27 inches; gravelly ashy very fine sandy loam
27 to 60 inches; extremely cobbly sand

Dissimilar Minor Components

- Cashmere soils (4 percent)
- Strat soils (4 percent)
- Supplee soils, steeper sloping (4 percent)
- Quincy soils (3 percent)

Major Use

Irrigated cropland

382—Tagear ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tagear and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tagear Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 34 inches; ashy sandy loam
34 to 39 inches; cobbly sandy loam
39 to 49 inches; very gravelly loamy sand
49 to 52 inches; cemented loamy sand
52 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

- Tagear soils, steeper sloping (5 percent)
- Stubblefield soils (3 percent)
- Aquolls (2 percent)
- Strat soils (2 percent)
- Simsfield soils (1 percent)
- Tubspring soils (1 percent)
- Zeemal soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

383—Tagear ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tagear and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tagear Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 34 inches; ashy sandy loam
34 to 39 inches; cobbly sandy loam
39 to 49 inches; very gravelly loamy sand
49 to 52 inches; cemented loamy sand
52 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

- Tagear soils, steeper sloping (5 percent)
- Simsfield soils (3 percent)
- Strat soils (3 percent)
- Tubspring soils (2 percent)
- Zeemal soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

384—Tagear ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tagear and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tagear Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 34 inches; ashy sandy loam
34 to 39 inches; cobbly sandy loam
39 to 49 inches; very gravelly loamy sand
49 to 52 inches; cemented loamy sand
52 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

- Tagear soils, steeper sloping (5 percent)
- Simsfield soils (3 percent)
- Strat soils (3 percent)
- Tubspring soils (2 percent)
- Zeemal soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

385—Taunton fine sandy loam, 10 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 10 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 8 inches; fine sandy loam
8 to 19 inches; very fine sandy loam
19 to 27 inches; gravelly fine sandy loam
27 to 37 inches; cemented material
37 to 57 inches; stratified cemented material ranging to silt loam
57 to 67 inches; unweathered bedrock

Dissimilar Minor Components

- Prosser soils (10 percent)

Major Use

Livestock grazing

386—Taunton silt loam, 5 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 5 to 10 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 19 inches; very fine sandy loam
19 to 27 inches; gravelly silt loam

27 to 37 inches; cemented material
37 to 57 inches; stratified cemented material ranging to silt loam
57 to 67 inches; unweathered bedrock

Dissimilar Minor Components

- Finley soils (10 percent)
- Taunton soils, steeper sloping (5 percent)

Major Use

Livestock grazing

387—Taunton silt loam, 15 to 25 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 15 to 25 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 19 inches; very fine sandy loam
19 to 27 inches; gravelly silt loam
27 to 37 inches; cemented material
37 to 57 inches; stratified cemented material ranging to silt loam
57 to 67 inches; unweathered bedrock

Dissimilar Minor Components

- Finley soils (10 percent)
- Taunton soils, steeper sloping (5 percent)

Major Use

Livestock grazing

388—Taunton-Finley complex, 0 to 10 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,400 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 50 percent
Finley and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 0 to 10 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 8 inches; silt loam
8 to 19 inches; very fine sandy loam
19 to 27 inches; gravelly silt loam
27 to 37 inches; cemented material
37 to 57 inches; stratified cemented material ranging to silt loam
57 to 67 inches; unweathered bedrock

Characteristics of Finley Soil

Landscape position
Landform: Fan piedmonts
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loamy alluvium over sandy alluvium
Slope range: 0 to 10 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 8 inches; cobbly very fine sandy loam
8 to 23 inches; very gravelly loam
23 to 60 inches; extremely gravelly loamy sand

Dissimilar Minor Components

- Taunton soils, loamy fine sand surface (10 percent)

Major Use

Livestock grazing

389—Taunton-Scoon complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 50 percent
Scoon and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 9 inches; very fine sandy loam
9 to 20 inches; loam
20 to 29 inches; very fine sandy loam
29 to 33 inches; cemented material
33 to 53 inches; stratified cemented material ranging to silt loam
53 to 63 inches; unweathered bedrock

Characteristics of Scoon Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 6 inches; loam
6 to 10 inches; silt loam
10 to 13 inches; very fine sandy loam
13 to 17 inches; cemented material
17 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

- Timmerman soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

390—Taunton-Scoon complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Taunton and similar soils: 50 percent
Scoon and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Taunton Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 9 inches; very fine sandy loam
9 to 20 inches; loam
20 to 29 inches; very fine sandy loam
29 to 33 inches; cemented material
33 to 53 inches; stratified cemented material ranging to silt loam
53 to 63 inches; unweathered bedrock

Characteristics of Scoon Soil

Landscape position
Landform: Structural benches
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 6-9 PZ (R007XY202WA)

Typical profile
0 to 6 inches; loam
6 to 10 inches; silt loam
10 to 13 inches; very fine sandy loam
13 to 17 inches; cemented material
17 to 37 inches; stratified cemented material ranging to silt loam
37 to 41 inches; unweathered bedrock

Dissimilar Minor Components

- Ritzville soils (5 percent)
- Timmerman soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

391—Terlan silt loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Terlan and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Terlan Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent

Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; gravelly loam
15 to 18 inches; gravelly loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Terlan soils, steeper sloping (5 percent)
- Zen soils (4 percent)
- Alstown soils (3 percent)
- Renslow soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

392—Terlan-Selah complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Terlan and similar soils: 50 percent
Selah and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Terlan Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent

Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; silt loam
8 to 15 inches; gravelly loam
15 to 18 inches; gravelly loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Characteristics of Selah Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 23 inches; silt loam
23 to 31 inches; silt loam
31 to 35 inches; cemented material
35 to 40 inches; stratified cemented material ranging to silt loam
40 to 44 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (5 percent)
- Benwy soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

393—Timentwa ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 0 to 8 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 27 inches; ashy loam
27 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Dissimilar Minor Components

- Alecanyon soils (10 percent)
- Timentwa soils, steeper sloping (3 percent)
- Nemire soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

394—Timentwa ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 27 inches; ashy loam
27 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Nemire soils (5 percent)
- Timentwa soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

395—Timentwa ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 27 inches; ashy loam
27 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Dissimilar Minor Components

- Alecanyon soils (5 percent)
- Nemire soils (5 percent)
- Timentwa soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

396—Timentwa-Lickskillet-Argabak complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,300 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa, bedrock substratum, and similar soils: 45 percent
Lickskillet and similar soils: 25 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 50 to 65 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 7.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 22 inches; ashy loam
22 to 37 inches; gravelly fine sandy loam
37 to 50 inches; gravelly fine sandy loam
50 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 15 inches; very gravelly loam
15 to 19 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.8 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 3 inches; very cobbly loam
3 to 8 inches; very cobbly loam
8 to 12 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)
- Aquolls (3 percent)
- Haploxerolls (2 percent)

Major Use

Livestock grazing

397—Timentwa-Lickskillet-Argabak complex, warm, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,400 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 170 days

Map Unit Composition

Timentwa, bedrock substratum, and similar soils: 45 percent
Lickskillet and similar soils: 25 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 50 to 65 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Moderate (about 7.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 24 inches; ashy fine sandy loam
24 to 44 inches; sandy loam
44 to 57 inches; cemented cobbly sandy loam
57 to 60 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 6 inches; very cobbly loam
6 to 12 inches; very gravelly loam
12 to 18 inches; very gravelly loam
18 to 22 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (5 percent)
- Aquolls (3 percent)
- Stubblefield soils (3 percent)
- Dezellem soils (2 percent)
- Haploxerolls (2 percent)

Major Use

Livestock grazing

398—Timentwa-Siweeka complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 45 percent
Siweeka and similar soils: 25 percent
Siweeka, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 36 inches; ashy loam
36 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Brazlan soils (5 percent)
- Alecanyon soils (3 percent)
- Haploxerolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

399—Timentwa-Siweeka complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 45 percent
Siweeka and similar soils: 25 percent
Siweeka, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 36 inches; ashy loam
36 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till

Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Brazlan soils (4 percent)
- Alecanyon soils (2 percent)
- Cachebutte soils (2 percent)
- Haploxerolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

400—Timentwa-Siweeka complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 45 percent
Siweeka and similar soils: 25 percent
Siweeka, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 36 inches; ashy loam
36 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Siweeka Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material; 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 29 inches; cobbly sandy loam
29 to 38 inches; cemented material
38 to 48 inches; very cobbly sandy loam
48 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Brazlan soils (4 percent)
- Alecanyon soils (2 percent)
- Cachebutte soils (2 percent)
- Dezellem soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

401—Timentwa-Siweeka-Brazlan complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 40 percent
Siweeka and similar soils: 25 percent
Brazlan and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 36 inches; ashy loam
36 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; ashy fine sandy loam
16 to 27 inches; gravelly ashy fine sandy loam
27 to 36 inches; cobbly fine sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Brazlan Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 36 inches to weakly cemented duripan; 24 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 5 inches; cobbly ashy fine sandy loam
5 to 13 inches; very gravelly ashy loam
13 to 20 inches; very gravelly loam
20 to 25 inches; cemented gravelly coarse sandy loam
25 to 29 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Alecanyon soils (3 percent)
- Aquolls (3 percent)
- Cachebutte soils (2 percent)
- Haploxerolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

402—Timentwa-Siweeka-Dezellem complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Timentwa and similar soils: 35 percent
Siweeka and similar soils: 30 percent
Dezellem and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Timentwa Soil

Landscape position
Landform: North aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 29 inches; ashy loam
29 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Characteristics of Siweeka Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 30 to 60 percent
Depth to restrictive features: 20 to 40 inches to moderately cemented duripan; 24 to 44 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 21 inches; gravelly ashy fine sandy loam
21 to 36 inches; cobbly sandy loam
36 to 42 inches; cemented material
42 to 60 inches; very cobbly sandy loam

Characteristics of Dezellem Soil

Landscape position
Landform: North aspects of till plains and moraines of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 30 to 60 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Dissimilar Minor Components

- Brazlan soils (5 percent)
- Haploxerolls (5 percent)
- Swakane soils (3 percent)
- Nemire soils (2 percent)

Major Use

Livestock grazing

403—Timmerman coarse sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,400 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Timmerman and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timmerman Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Eolian deposits mixed with sandy glacial outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 12 to 25 inches to strongly contrasting textural stratification

Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 3e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 9 inches; coarse sandy loam
9 to 20 inches; fine sandy loam
20 to 60 inches; coarse sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Timmerman soils, steeper sloping (5 percent)
- Scoon soils (3 percent)
- Taunton soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

404—Timmerman coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,400 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Timmerman and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timmerman Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Eolian deposits mixed with sandy glacial outwash
Slope range: 3 to 8 percent
Depth to restrictive feature: 12 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 3e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 9 inches; coarse sandy loam
9 to 20 inches; fine sandy loam
20 to 60 inches; coarse sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Timmerman soils, steeper sloping (5 percent)
- Scoon soils (3 percent)
- Taunton soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

405—Timmerman coarse sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,300 to 1,400 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Timmerman and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Timmerman Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Eolian deposits mixed with sandy glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 12 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 4.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Land capability subclass (irrigated): 4e
Ecological site: SANDS 6-9 PZ (R007XY502WA)

Typical profile
0 to 9 inches; coarse sandy loam
9 to 20 inches; fine sandy loam
20 to 60 inches; coarse sand

Dissimilar Minor Components

- Quincy soils (5 percent)
- Timmerman soils, steeper sloping (5 percent)
- Scoon soils (3 percent)
- Taunton soils (2 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

406—Titchenal silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Titchenal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Titchenal Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 57 inches; silt loam
57 to 60 inches; cemented material

Dissimilar Minor Components

- Broadax soils (5 percent)
- Titchenal soils, steeper sloping (5 percent)
- Morrow soils (3 percent)
- Van Nostern soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

407—Titchenal silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Titchenal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Titchenal Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over a duripan
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to moderately cemented duripan
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 11.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 57 inches; silt loam
57 to 60 inches; cemented material

Dissimilar Minor Components

- Broadax soils, bedrock substratum (5 percent)
- Titchenal soils, steeper sloping (5 percent)
- Morrow soils (3 percent)
- Van Nostern soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

408—Toler ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam

30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Dissimilar Minor Components

- Toler soils, steeper sloping (7 percent)
- Corbaley soils (3 percent)
- Aarup soils (2 percent)
- Kester soils (2 percent)
- Whiteye soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

409—Toler ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Toler soils, steeper sloping (5 percent)
- Aarup soils (3 percent)
- Corbaley soils (3 percent)
- Kester soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

410—Toler ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Corbaley soils (5 percent)
- Toler soils, steeper sloping (4 percent)

- Aarup soils (2 percent)
- Kester soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

411—Toler ashy silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Toler soils, steeper sloping (5 percent)
- Terlan soils (3 percent)
- Alstown soils (2 percent)
- Renslow soils (2 percent)
- Argabak soils (1 percent)

- Horseflat soils (1 percent)
- Lickskillet soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

412—Toler ashy silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Horseflat soils (3 percent)
- Toler soils, steeper sloping (3 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)
- Terlan soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

413—Toler ashy silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Toler soils, steeper sloping (4 percent)
- Horseflat soils (3 percent)
- Alstown soils (2 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)
- Terlan soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

414—Toler ashy silt loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Horseflat soils (4 percent)
- Terlan soils (4 percent)
- Alstown soils (3 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

415—Toler-Argabak-Horseflat complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 55 percent
Argabak and similar soils: 20 percent
Horseflat and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Toler Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt

Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very cobbly loam
9 to 13 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Rock outcrop (3 percent)
- Grinrod soils (2 percent)

Major Use

Livestock grazing

416—Toler-Corbaley complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 55 percent
Corbaley and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Characteristics of Corbaley Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; cobbly ashy fine sandy loam
4 to 12 inches; very gravelly ashy fine sandy loam
12 to 22 inches; unweathered bedrock

Dissimilar Minor Components

- Winblow soils (5 percent)
- Benwy soils (2 percent)
- Deercut soils (2 percent)
- Slusser soils (2 percent)
- Sprauer soils (2 percent)
- Aarup soils (1 percent)
- Whiteye soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

417—Toler-Corbaley complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 55 percent
Corbaley and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Characteristics of Corbaley Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; cobbly ashy fine sandy loam
4 to 12 inches; very gravelly ashy fine sandy loam
12 to 22 inches; unweathered bedrock

Dissimilar Minor Components

- Winblow soils (5 percent)
- Benwy soils (2 percent)
- Deercut soils (2 percent)
- Slusser soils (2 percent)
- Sprauer soils (2 percent)
- Aarup soils (1 percent)
- Whiteye soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

418—Toler-Corbaley complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 55 percent
Corbaley and similar soils: 30 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Characteristics of Corbaley Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; cobbly ashy fine sandy loam
4 to 12 inches; very gravelly ashy fine sandy loam
12 to 22 inches; unweathered bedrock

Dissimilar Minor Components

- Winblow soils (5 percent)
- Benwy soils (2 percent)
- Deercut soils (2 percent)
- Slusser soils (2 percent)
- Sprauer soils (2 percent)
- Aarup soils (1 percent)
- Whiteye soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

419—Toler-Horseflat complex, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high

Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Alstown soils (4 percent)
- Renslow soils (4 percent)
- Kester soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

420—Toler-Horseflat complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Alstown soils (4 percent)
- Renslow soils (4 percent)
- Kester soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

421—Toler-Horseflat complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Argabak soils (5 percent)
- Alstown soils (4 percent)
- Renslow soils (4 percent)
- Kester soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

422—Toler-Horseflat complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (4 percent)
- Kester soils (4 percent)
- Renslow soils (4 percent)
- Argabak soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

423—Toler-Horseflat-Benwy complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 40 percent
Horseflat and similar soils: 30 percent
Benwy and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Toler Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam
44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Renslow soils (3 percent)
- Argabak soils (2 percent)
- Kester soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

424—Toler-Horseflat-Ralls complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 40 percent
Horseflat and similar soils: 30 percent
Ralls, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Toler Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Characteristics of Ralls Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 32 inches; silt loam
32 to 52 inches; gravelly clay loam
52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (2 percent)
- Argabak soils (2 percent)
- Haploxerolls (2 percent)
- Kester soils (2 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

425—Toler-Horseflat-Ralls complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 35 percent
Horseflat and similar soils: 30 percent
Ralls, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 6.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy silt loam
10 to 14 inches; silt loam
14 to 26 inches; silt loam
26 to 36 inches; silt loam
36 to 40 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Characteristics of Ralls Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 32 inches; silt loam
32 to 52 inches; gravelly clay loam
52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Haploxerolls (3 percent)
- Rock outcrop (3 percent)
- Kester soils (2 percent)
- Renslow soils (2 percent)
- Rubble land (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

426—Toler-Kester complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Toler and similar soils: 50 percent
Kester and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Toler Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 22 inches; silt loam
22 to 30 inches; silt loam
30 to 32 inches; silt loam
32 to 36 inches; unweathered bedrock

Characteristics of Kester Soil

Landscape position
Landform: Drainageways of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 3 to 5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY BOTTOM 9-15 PZ (R008XY402WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 25 inches; ashy sandy loam
25 to 32 inches; ashy sandy loam
32 to 42 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils (5 percent)
- Corbaley soils (5 percent)
- Whiteye soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

427—Torriorthents, very steep

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 1,800 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Map Unit Composition

Torriorthents and similar soils: 90 percent
Dissimilar minor components: 10 percent

Characteristics of Torriorthents

Landscape position
Landform: Columbia River terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Glacial outwash
Slope range: 25 to 65 percent
Depth to restrictive feature: 10 to 14 inches to strongly contrasting textural stratification
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 2.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; gravelly fine sandy loam
10 to 60 inches; very cobbly coarse sand

Dissimilar Minor Components

- Pogue soils (5 percent)
- Quincy soils (5 percent)

Major Use

Livestock grazing

428—Touhey complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey and similar soils: 45 percent
Touhey, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 8 percent

Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 24 inches; gravelly ashy fine sandy loam
24 to 38 inches; gravelly sandy loam
38 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very cobbly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Touhey soils, steeper sloping (4 percent)
- DelRio soils (3 percent)

- Aquolls (2 percent)
- Ellisforde soils (2 percent)
- Strat soils (2 percent)
- Simsfield soils (1 percent)
- Tubspring soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

429—Touhey complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey and similar soils: 45 percent
Touhey, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 24 inches; gravelly ashy fine sandy loam
24 to 38 inches; gravelly sandy loam
38 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very gravelly sandy loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Touhey soils, steeper sloping (5 percent)
- Strat soils (3 percent)
- Tubspring soils (3 percent)
- DelRio soils (2 percent)
- Simsfield soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

430—Touhey complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey and similar soils: 45 percent
Touhey, bedrock substratum, and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 24 inches; gravelly ashy fine sandy loam
24 to 38 inches; gravelly sandy loam
38 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very cobbly sandy loam

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam

16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented gravelly sandy loam
23 to 42 inches; very gravelly sandy loam
42 to 52 inches; unweathered bedrock

Dissimilar Minor Components

- Strat soils (5 percent)
- Touhey soils, steeper sloping (5 percent)
- Tubspring soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

431—Touhey ashy fine sandy loam, low elevation, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 185 days

Map Unit Composition

Touhey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: North aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 31 inches; gravelly fine sandy loam

31 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Ellisforde soils (5 percent)
- Touhey soils, steeper sloping (5 percent)
- Heytou soils (3 percent)
- Stubblefield soils (2 percent)

Major Uses

Irrigated cropland and livestock grazing

432—Touhey ashy fine sandy loam, low elevation, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 185 days

Map Unit Composition

Touhey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: North aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 31 inches; gravelly fine sandy loam

31 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)
- Touhey soils, steeper sloping (5 percent)

Major Uses

Irrigated cropland and livestock grazing

433—Touhey ashy fine sandy loam, low elevation, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 185 days

Map Unit Composition

Touhey and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil

Landscape position
Landform: North aspects of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 15 inches; ashy fine sandy loam
15 to 38 inches; gravelly fine sandy loam
38 to 40 inches; cemented very gravelly sandy loam
40 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)
- Touhey soils, steeper sloping (5 percent)

Major Uses

Irrigated cropland and livestock grazing

434—Touhey-Argabak complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 60 percent
Argabak and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

- Aquolls (5 percent)
- Rock outcrop (5 percent)
- Heytou soils (3 percent)
- Stubblefield soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

435—Touhey-Argabak-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 55 percent
Argabak and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)

Major Use

Livestock grazing

436—Touhey-Argabak-Rock outcrop complex, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 55 percent
Argabak and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 30 to 65 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 65 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren basalt
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Heytou soils (5 percent)
- Stubblefield soils (5 percent)

Major Use

Livestock grazing

437—Touhey-Lickskillet-Argabak complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 50 percent
Lickskillet and similar soils: 25 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 14 inches; very gravelly loam
14 to 18 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 15 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 2 inches; very cobbly loam
2 to 10 inches; very cobbly loam
10 to 14 inches; unweathered bedrock

Dissimilar Minor Components

- Rock outcrop (10 percent)

Major Use

Livestock grazing

438—Touhey-Stubblefield complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 65 percent
Stubblefield and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 0 to 8 percent

Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Aquolls (5 percent)
- Strat soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

439—Touhey-Stubblefield complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 65 percent
Stubblefield and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Strat soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

440—Touhey-Stubblefield complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 65 percent
Stubblefield and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent

Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Dissimilar Minor Components

- Stubblefield soils, very stony surface (4 percent)
- Haploxerolls (3 percent)
- Strat soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

441—Touhey-Stubblefield-Stubblefield extremely bouldery complex, 3 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 40 percent
Stubblefield and similar soils: 25 percent
Stubblefield, extremely bouldery, and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt

Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds on till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Characteristics of Stubblefield Soil, Extremely Bouldery

Landscape position
Landform: Mounds on till plains on glaciated plateaus (fig. 11)
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 3 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)



Figure 11.—Glacially deposited boulders referred to as haystacks in an area of Touhey-Stubblefield-Stubblefield extremely bouldery complex, 3 to 15 percent slopes.

Typical profile
0 to 9 inches; extremely bouldery fine sandy loam
9 to 20 inches; very gravelly fine sandy loam
20 to 34 inches; very gravelly fine sandy loam
34 to 40 inches; cemented material
40 to 60 inches; very gravelly fine sandy loam

Dissimilar Minor Components

- Strat soils (10 percent)

Major Uses

Nonirrigated cropland and livestock grazing

442—Touhey-Stubblefield-Tagear complex, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Touhey, bedrock substratum, and similar soils: 40 percent
Stubblefield and similar soils: 25 percent
Tagear and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Touhey Soil, Bedrock Substratum

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till over basalt
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 45 inches to dense material; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 3.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 16 inches; cobbly ashy sandy loam
16 to 21 inches; cobbly sandy loam
21 to 23 inches; cemented very gravelly sandy loam
23 to 42 inches; very cobbly sandy loam
42 to 52 inches; unweathered bedrock

Characteristics of Stubblefield Soil

Landscape position
Landform: Mounds and depressions of till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 0 to 15 percent
Depth to restrictive features: 20 to 40 inches to strongly cemented duripan; 22 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 10 inches; very cobbly fine sandy loam
10 to 16 inches; very cobbly fine sandy loam
16 to 30 inches; very cobbly sandy loam
30 to 38 inches; cemented material
38 to 60 inches; gravelly fine sandy loam

Characteristics of Tagear Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till
Slope range: 0 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 34 inches; ashy sandy loam
34 to 39 inches; cobbly sandy loam
39 to 49 inches; very gravelly loamy sand
49 to 52 inches; cemented loamy sand
52 to 60 inches; very gravelly loamy sand

Dissimilar Minor Components

- Strat soils (5 percent)
- Aquolls (2 percent)
- Haploxerolls (2 percent)
- Heytou soils (2 percent)
- Tubspring soils (2 percent)
- Argabak soils (1 percent)
- Lickskillet soils (1 percent)

Major Use

Livestock grazing

443—Tubspring ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tubspring and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 20 inches; ashy sandy loam
20 to 31 inches; gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Tubspring soils, steeper sloping (5 percent)
- Stubblefield soils (3 percent)
- Tagear soils (3 percent)
- Aquolls (2 percent)
- Touhey soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

444—Tubspring ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tubspring and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 20 inches; ashy sandy loam
20 to 31 inches; gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- Tubspring soils, steeper sloping (5 percent)
- Stubblefield soils (4 percent)
- Tagear soils (3 percent)
- Touhey soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

445—Tubspring ashy fine sandy loam, thin solum, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tubspring and similar soils: 80 percent
Dissimilar minor components: 20 percent

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 3 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): Low (about 4.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 9 inches; ashy fine sandy loam
9 to 14 inches; gravelly ashy fine sandy loam
14 to 18 inches; gravelly loamy coarse sand
18 to 60 inches; extremely gravelly coarse sand

Dissimilar Minor Components

- DelRio soils (5 percent)
- Quincy soils (5 percent)
- Tubspring soils, steeper sloping (5 percent)
- Stubblefield soils (2 percent)
- Tagear soils (2 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

446—Tubspring-DelRio-Strat complex, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Tubspring and similar soils: 40 percent
DelRio and similar soils: 25 percent
Strat and similar soils: 25 percent
Dissimilar minor components: 10 percent

Characteristics of Tubspring Soil

Landscape position
Landform: Terraces, kames, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 14 to 37 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 12 inches; ashy fine sandy loam
12 to 20 inches; ashy sandy loam
20 to 31 inches; gravelly loamy coarse sand
31 to 60 inches; extremely gravelly coarse sand

Characteristics of DelRio Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over sandy glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 44 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 10.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 13 inches; ashy fine sandy loam
13 to 45 inches; ashy fine sandy loam
45 to 60 inches; loamy fine sand

Characteristics of Strat Soil

Landscape position
Landform: Terraces, kames, eskers, and drainageways of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Glacial outwash
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 3.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 9 inches; cobbly sandy loam
9 to 20 inches; very cobbly loam
20 to 60 inches; extremely gravelly sand

Dissimilar Minor Components

- Aquolls (4 percent)
- Simsfield soils (2 percent)
- Stubblefield soils (1 percent)
- Tagear soils (1 percent)
- Touhey soils (1 percent)
- Zeemal soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

447—Van Nostern silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (5 percent)
- Camaspatch soils (5 percent)
- Van Nostern soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

448—Van Nostern silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (5 percent)
- Camaspatch soils (5 percent)
- Van Nostern soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

449—Van Nostern silt loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Dissimilar Minor Components

- Broadax soils (5 percent)
- Camaspatch soils (5 percent)
- Van Nostern soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

450—Van Nostern-Argabak-Camaspatch complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 50 percent
Argabak and similar soils: 25 percent
Camaspatch and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 13 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- Badge soils (4 percent)
- Rock outcrop (4 percent)
- Rubble land (2 percent)

Major Use

Livestock grazing

451—Van Nostern-Camaspatch complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 60 percent
Camaspatch and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- McCue soils (4 percent)
- Badge soils (2 percent)
- Hanning soils (2 percent)
- Rock outcrop (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

452—Van Nostern-Camaspatch complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 60 percent
Camaspatch and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 8 to 15 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- McCue soils (4 percent)
- Badge soils (2 percent)
- Hanning soils (2 percent)
- Rock outcrop (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

453—Van Nostern-Camaspatch complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Van Nostern and similar soils: 60 percent
Camaspatch and similar soils: 30 percent
Dissimilar minor components: 10 percent

Characteristics of Van Nostern Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 16 inches; silt loam
16 to 28 inches; silt loam
28 to 38 inches; silt loam
38 to 48 inches; unweathered bedrock

Characteristics of Camaspatch Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 7 inches; very cobbly loam
7 to 10 inches; very cobbly clay loam
10 to 18 inches; very gravelly clay
18 to 28 inches; unweathered bedrock

Dissimilar Minor Components

- McCue soils (4 percent)
- Badge soils (2 percent)
- Hanning soils (2 percent)
- Rock outcrop (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

454—Vitrandic Argixerolls-Argabak complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 3,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 170 days

Map Unit Composition

Vitrandic Argixerolls and similar soils: 40 percent
Vitrandic Argixerolls, stony, and similar soils: 25 percent
Argabak and similar soils: 15 percent
Dissimilar minor components: 20 percent

Characteristics of Vitrandic Argixerolls

Landscape position
Landform: North aspects and depressions of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 4
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 4 inches; ashy silt loam
4 to 25 inches; ashy fine sandy loam
25 to 31 inches; gravelly ashy silt loam
31 to 37 inches; very cobbly loam
37 to 57 inches; very gravelly clay loam
57 to 67 inches; unweathered bedrock

Characteristics of Vitrandic Argixerolls, Stony

Landscape position
Landform: North aspects and ridges of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Depth to restrictive feature: 20 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 4
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 11 inches; gravelly ashy fine sandy loam
11 to 16 inches; very cobbly loam
16 to 53 inches; very gravelly clay loam
53 to 58 inches; very gravelly clay loam
58 to 68 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 30 to 60 percent

Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 13 inches; unweathered bedrock

Dissimilar Minor Components

- Horseflat soils (10 percent)
- Rock outcrop (5 percent)
- Rubble land (5 percent)

Major Use

Livestock grazing

455—Warden very fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 800 to 1,000 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Warden and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Warden Soil

Landscape position
Landform: Terraces of Moses Coulee
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess over glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)

Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): High (about 11 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6e
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 6-9 PZ (R007XY102WA)

Typical profile
0 to 10 inches; very fine sandy loam
10 to 30 inches; silt loam
30 to 60 inches; stratified very fine sandy loam to silt loam

Dissimilar Minor Components

- Esquatzel soils (10 percent)
- Finley soils (5 percent)

Major Uses

Nonirrigated and irrigated cropland

456—Watco ashy fine sandy loam, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 110 to 140 days

Map Unit Composition

Watco and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Watco Soil

Landscape position
Landform: North aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 55 inches to strongly contrasting textural stratification; 50 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 22 inches; ashy fine sandy loam
22 to 42 inches; ashy fine sandy loam
42 to 58 inches; very gravelly sandy loam
58 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Stemilt soils (10 percent)
- Wagberg soils (5 percent)

Major Uses

Livestock grazing and forestry

457—Watco-Dezellem-Timentwa complex, 3 to 35 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Watco and similar soils: 45 percent
Dezellem and similar soils: 25 percent
Timentwa and similar soils: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Watco Soil

Landscape position
Landform: North aspects and depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till
Slope range: 3 to 35 percent
Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 4 inches; very bouldery ashy fine sandy loam
4 to 13 inches; ashy fine sandy loam
13 to 47 inches; ashy fine sandy loam
47 to 60 inches; extremely gravelly sandy loam

Characteristics of Dezellem Soil

Landscape position
Landform: South aspects of till plains and moraines on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 3 to 35 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 3
Available water capacity (entire profile): Low (about 5.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very stony ashy fine sandy loam
4 to 18 inches; gravelly ashy fine sandy loam
18 to 24 inches; very gravelly sandy loam
24 to 36 inches; cobbly sandy loam
36 to 60 inches; extremely gravelly sandy loam

Characteristics of Timentwa Soil

Landscape position
Landform: Till plains on glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 3 to 35 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 45 to 65 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 6
Available water capacity (entire profile): Moderate (about 8.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 36 inches; ashy loam
36 to 51 inches; gravelly fine sandy loam
51 to 52 inches; cemented cobbly sandy loam
52 to 60 inches; cobbly sandy loam

Dissimilar Minor Components

- Brazlan soils (5 percent)
- Haploxerolls (5 percent)
- Rubble land (5 percent)

Major Uses

Livestock grazing and forestry

458—Water

Map Unit Composition

Water: 100 percent

Characteristics of Water

Description of areas: Streams, rivers, lakes, and reservoirs that are covered with water in most years
Fluctuation of boundaries: Depending on time of year and amount of spring runoff, boundaries between areas of water and soil can fluctuate
Land capability class: 8

459—Waterflat ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Waterflat and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Waterflat Soil

Landscape position
Landform: Drainageways and swales of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over old alluvium
Slope range: 0 to 3 percent

Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Poorly drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: Occasional (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: About 12 to 18 inches (see Water Features table)
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 2
Available water capacity (entire profile): High (about 11.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4w
Ecological site: WET MEADOW 9-15 PZ (R008XY601WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 30 inches; ashy loam
30 to 43 inches; ashy loam
43 to 60 inches; stratified coarse sand to silty clay loam

Dissimilar Minor Components

- Aquolls (4 percent)
- Dougville soils (4 percent)
- Halaquepts (4 percent)
- Kester soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

460—Wellsdam ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Wellsdam soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

461—Wellsdam ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches

Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Wellsdam soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

462—Wellsdam ashy fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)
- Wellsdam soils, steeper sloping (5 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

463—Wellsdam ashy fine sandy loam, 30 to 65 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 30 to 65 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Dissimilar Minor Components

- Chelan soils (5 percent)
- Willock soils (4 percent)
- Rock outcrop (3 percent)
- Couleedam soils (2 percent)
- Roosevelt soils (1 percent)

Major Use

Livestock grazing

464—Wellsdam-Couleedam-Rock outcrop complex, 3 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 55 percent
Couleedam and similar soils: 15 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 3 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 18 inches; ashy fine sandy loam
18 to 38 inches; ashy fine sandy loam
38 to 54 inches; cemented cobbly fine sandy loam
54 to 60 inches; cobbly fine sandy loam

Characteristics of Couleedam Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 3 to 30 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; very stony sandy loam
4 to 9 inches; very cobbly sandy loam
9 to 16 inches; very cobbly sandy loam
16 to 26 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Chelan soils (5 percent)
- Peshastin soils (5 percent)
- Roosevelt soils (5 percent)

Major Use

Livestock grazing

465—Wellsdam-Couleedam-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,200 to 2,200 feet

Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 50 percent
Couleedam and similar soils: 20 percent
Rock outcrop: 15 percent
Dissimilar minor components: 15 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 18 inches; ashy fine sandy loam
18 to 38 inches; ashy fine sandy loam
38 to 54 inches; cemented cobbly fine sandy loam
54 to 60 inches; cobbly fine sandy loam

Characteristics of Couleedam Soil

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from granite
Slope range: 30 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 4 inches; very stony sandy loam
4 to 9 inches; very cobbly sandy loam
9 to 16 inches; very cobbly sandy loam
16 to 26 inches; unweathered bedrock

Characteristics of Rock Outcrop

Description of areas: Exposures of barren granitic rock
Position on landform: All slopes
Land capability class: 8

Dissimilar Minor Components

- Wellsdam soils, very stony surface (10 percent)
- Chelan soils (3 percent)
- Roosevelt soils (2 percent)

Major Use

Livestock grazing

466—Wellsdam-Peshastin complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 50 percent
Peshastin and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Treads

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 3 to 8 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Land capability subclass (irrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

467—Wellsdam-Peshastin complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 50 percent
Peshastin and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 8 to 15 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Land capability subclass (irrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

468—Wellsdam-Peshastin complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 1,000 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Map Unit Composition

Wellsdam and similar soils: 50 percent
Peshastin and similar soils: 40 percent
Dissimilar minor components: 10 percent

Characteristics of Wellsdam Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 20 to 40 inches to weakly cemented duripan; 22 to 55 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 4.8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: DRY LOAMY 9-15 PZ (R008XY101WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 27 inches; ashy fine sandy loam
27 to 30 inches; cemented cobbly fine sandy loam
30 to 60 inches; cobbly fine sandy loam

Characteristics of Peshastin Soil

Landscape position
Landform: Terraces
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 15 to 30 percent
Depth to restrictive feature: 15 to 25 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 1
Available water capacity (entire profile): Low (about 5.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Land capability subclass (irrigated): 6e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 12 inches; fine sandy loam
12 to 22 inches; very gravelly sandy loam
22 to 60 inches; extremely gravelly coarse sandy loam

Dissimilar Minor Components

- Chelan soils (10 percent)

Major Uses

Nonirrigated and irrigated cropland, and livestock grazing

469—Whiteye ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Whiteye and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Whiteye Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Depth to restrictive features: 10 to 20 inches to indurated duripan; 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 3.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 18 inches; silt loam
18 to 22 inches; cemented material
22 to 27 inches; stratified cemented material ranging to silt loam
27 to 37 inches; unweathered bedrock

Dissimilar Minor Components

- Aarup soils, eroded (5 percent)
- Whiteye soils, steeper sloping (3 percent)
- Deercut soils (2 percent)
- Sprauer soils (2 percent)
- Toler soils (2 percent)
- Winblow soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

470—Willis silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Willis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 0 to 3 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam
17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (5 percent)
- Ritzville soils (5 percent)
- Willis soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

471—Willis silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Willis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam
17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (5 percent)
- Ritzville soils (5 percent)
- Willis soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

472—Willis silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Willis and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willis Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over a duripan over basalt
Slope range: 8 to 15 percent
Depth to restrictive features: 20 to 40 inches to indurated duripan; 30 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 9 inches; silt loam
9 to 17 inches; silt loam
17 to 30 inches; silt loam
30 to 34 inches; cemented material
34 to 39 inches; stratified cemented material ranging to silt loam
39 to 49 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (5 percent)
- Ritzville soils (5 percent)
- Willis soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

473—Willock ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over dense glacial till
Slope range: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy loam
23 to 34 inches; cobbly loam
34 to 43 inches; sandy loam
43 to 60 inches; loamy sand

Dissimilar Minor Components

- Willock soils, steeper sloping (7 percent)
- Wagberg soils (6 percent)
- Aquolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

474—Willock ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,400 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 8.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 23 inches; ashy loam
23 to 34 inches; cobbly loam
34 to 43 inches; sandy loam
43 to 60 inches; loamy sand

Dissimilar Minor Components

- Ginnis soils (5 percent)
- Wagberg soils (5 percent)
- Willock soils, steeper sloping (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

475—Willock complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 60 percent
Willock, bedrock substratum, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly sandy loam

Characteristics of Willock Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Nose slopes

Properties and qualities
Parent material: Loess and volcanic ash over till over granite
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 50 inches to paralithic bedrock; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 41 inches; gravelly fine sandy loam
41 to 55 inches; weathered bedrock
55 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Wagberg soils (5 percent)
- Willock soils, steeper sloping (5 percent)
- Ginnis soils (3 percent)
- Swakane soils (2 percent)

Major Use

Livestock grazing

476—Willock complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 60 percent
Willock, bedrock substratum, and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly sandy loam

Characteristics of Willock Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Nose slopes

Properties and qualities
Parent material: Loess and volcanic ash over till over granite
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 50 inches to paralithic bedrock; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 41 inches; gravelly fine sandy loam
41 to 55 inches; weathered bedrock
55 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Wagberg soils (5 percent)
- Willock soils, steeper sloping (5 percent)
- Ginnis soils (3 percent)
- Swakane soils (2 percent)

Major Use

Livestock grazing

477—Willock complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 50 percent
Willock, bedrock substratum, and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Willock Soil, Bedrock Substratum

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over granite
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 50 inches to paralithic bedrock; 50 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 41 inches; cobbly sandy loam
41 to 55 inches; weathered bedrock
55 to 60 inches; unweathered bedrock

Dissimilar Minor Components

- Wagberg soils (10 percent)
- Ginnis soils (3 percent)
- Swakane soils (2 percent)

Major Use

Livestock grazing

478—Willock-Conconully complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 55 percent
Conconully, bedrock substratum, and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 2e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 3 to 8 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Wagberg soils (5 percent)
- Aquolls (3 percent)
- Haploxerolls (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

479—Willock-Conconully complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 55 percent
Conconully, bedrock substratum, and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 8 to 15 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 8 to 15 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Haploxerolls (5 percent)
- Wagberg soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

480—Willock-Conconully complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 55 percent
Conconully, bedrock substratum, and similar soils: 35 percent
Dissimilar minor components: 10 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Conconully Soil, Bedrock Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 15 to 30 percent
Depth to restrictive features: 26 to 40 inches to dense material; 45 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 5.7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 6 inches; ashy sandy loam
6 to 12 inches; ashy sandy loam
12 to 25 inches; sandy loam
25 to 35 inches; gravelly sandy loam
35 to 50 inches; gravelly sandy loam
50 to 60 inches; weathered bedrock

Dissimilar Minor Components

- Swakane soils (5 percent)
- Wagberg soils (5 percent)

Major Uses

Nonirrigated cropland and livestock grazing

481—Willock-Watco complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 1,800 to 2,900 feet

Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 45 percent
Watco and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Watco Soil

Landscape position
Landform: North aspects and depressions of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till
Slope range: 15 to 30 percent
Depth to restrictive features: 40 to 55 inches to strongly contrasting textural stratification; 50 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None

Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 18 inches; ashy fine sandy loam
18 to 42 inches; ashy fine sandy loam
42 to 58 inches; very gravelly sandy loam
58 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Wagberg soils (10 percent)
- Stemilt soils (5 percent)

Major Uses

Livestock grazing and forestry

482—Willock-Watco complex, 30 to 60 percent slopes

Map Unit Setting

Major land resource area (MLRA): 6
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Map Unit Composition

Willock, cemented substratum, and similar soils: 45 percent
Watco and similar soils: 40 percent
Dissimilar minor components: 15 percent

Characteristics of Willock Soil, Cemented Substratum

Landscape position
Landform: Scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 60 inches to weakly cemented duripan; 41 to 61 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7.1 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: SANDY 9-15 PZ (R008XY501WA)

Typical profile
0 to 10 inches; ashy fine sandy loam
10 to 20 inches; ashy fine sandy loam
20 to 30 inches; ashy fine sandy loam
30 to 42 inches; gravelly fine sandy loam
42 to 46 inches; cemented gravelly fine sandy loam
46 to 60 inches; very gravelly loam

Characteristics of Watco Soil

Landscape position
Landform: North aspects of scarp slopes of glaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over glacial till
Slope range: 30 to 60 percent
Depth to restrictive features: 40 to 55 inches to strongly contrasting textural stratification; 50 to 60 inches to dense material
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): High (about 9.6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7e
Ecological site: Pinus ponderosa/Pseudoroegneria spicata (F006XY801WA)

Typical profile
0 to 5 inches; ashy fine sandy loam
5 to 18 inches; ashy fine sandy loam
18 to 42 inches; ashy fine sandy loam
42 to 58 inches; very gravelly sandy loam
58 to 60 inches; very gravelly sandy loam

Dissimilar Minor Components

- Stemilt soils (5 percent)
- Wagberg soils (5 percent)
- Argabak soils (3 percent)
- Lickskillet soils (2 percent)

Major Uses

Livestock grazing and forestry

483—Winblow ashy fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Winblow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Winblow Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 16 inches; ashy fine sandy loam
16 to 22 inches; ashy fine sandy loam
22 to 28 inches; ashy fine sandy loam
28 to 30 inches; ashy silt loam
30 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Winblow soils, steeper sloping (5 percent)
- Aarup soils (3 percent)
- Kester soils (3 percent)
- Corbaley soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

484—Winblow ashy fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Winblow and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Winblow Soil

Landscape position
Landform: North aspects of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 6 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 7 inches; ashy fine sandy loam
7 to 16 inches; ashy fine sandy loam
16 to 22 inches; ashy fine sandy loam
22 to 28 inches; ashy fine sandy loam
28 to 30 inches; ashy silt loam
30 to 40 inches; unweathered bedrock

Dissimilar Minor Components

- Winblow soils, steeper sloping (5 percent)
- Aarup soils (3 percent)
- Kester soils (3 percent)
- Corbaley soils (2 percent)
- Whiteye soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

485—Winblow-Argabak-Horseflat complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,500 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Winblow and similar soils: 40 percent
Argabak and similar soils: 25 percent
Horseflat and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Winblow Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Moderate (about 7.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; ashy fine sandy loam
6 to 10 inches; ashy fine sandy loam
10 to 39 inches; ashy fine sandy loam
39 to 49 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.6 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 4 inches; extremely cobbly loam
4 to 7 inches; very cobbly loam
7 to 11 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 6 inches; very cobbly fine sandy loam
6 to 17 inches; very gravelly loam
17 to 27 inches; unweathered bedrock

Dissimilar Minor Components

- Haploxerolls (3 percent)
- Rock outcrop (3 percent)
- Aquolls (2 percent)
- Grinrod soils (2 percent)
- Logy soils (2 percent)
- Skaha soils (1 percent)
- Strat soils (1 percent)
- Tubspring soils (1 percent)

Major Use

Livestock grazing

486—Xerofluvents-Beverly association, 0 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 7
Elevation: 600 to 2,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Xerofluvents and similar soils: 60 percent
Beverly and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Xerofluvents

Landscape position
Landform: Flood plains
Geomorphic position (three-dimensional): Talfs

Properties and qualities
Parent material: Alluvium
Slope range: 0 to 5 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: Frequent (see Water Features table)
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.3 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: SANDS 9-15 PZ (R008XY502WA)

Typical profile
0 to 6 inches; extremely cobbly loamy sand
6 to 60 inches; extremely cobbly sand

Characteristics of Beverly Soil

Landscape position
Landform: Fans
Geomorphic position (three-dimensional): Risers

Properties and qualities
Parent material: Recent sandy and gravelly alluvium
Slope range: 5 to 15 percent
Depth to restrictive feature: 14 to 25 inches to strongly contrasting textural stratification
Drainage class: Somewhat excessively drained
Capacity of the most limiting soil layer to transmit water (Ksat): High
Flooding frequency: None
Ponding frequency: None

Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Low (about 4.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: SANDY 6-9 PZ (R007XY501WA)

Typical profile
0 to 5 inches; cobbly fine sandy loam
5 to 20 inches; gravelly fine sandy loam
20 to 60 inches; extremely gravelly loamy coarse sand

Dissimilar Minor Components

- Aquolls (5 percent)
- Cashmont soils (4 percent)
- Logy soils (3 percent)
- Pogue soils (3 percent)

Major Use

Livestock grazing

487—Zeemal ashy fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zeemal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zeemal Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: Rare (see Water Features table)
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 17 inches; cemented sandy loam
17 to 33 inches; silt loam
33 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Zeemal soils, steeper sloping (3 percent)
- Aquolls (2 percent)
- DelRio soils (2 percent)
- St. Andrews soils (2 percent)
- Touhey soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

488—Zeemal ashy fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zeemal and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zeemal Soil

Landscape position
Landform: Depressions of glaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess and volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to weakly cemented duripan
Drainage class: Moderately well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: About 36 to 60 inches (see Water Features table)
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Very low (about 2.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: STONY 9-15 PZ (R008XY202WA)

Typical profile
0 to 8 inches; ashy fine sandy loam
8 to 12 inches; ashy silt loam
12 to 17 inches; cemented sandy loam
17 to 33 inches; silt loam
33 to 60 inches; silty clay loam

Dissimilar Minor Components

- Halaquepts (5 percent)
- Zeemal soils, steeper sloping (5 percent)
- St. Andrews soils (3 percent)
- Touhey soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

489—Zen silt loam, 0 to 3 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Dissimilar Minor Components

- Zen soils, steeper sloping (5 percent)
- Terlan soils (3 percent)
- Alstown soils (2 percent)
- Renslow soils (2 percent)
- Argabak soils (1 percent)
- Horseflat soils (1 percent)
- Lickskillet soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

490—Zen silt loam, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Horseflat soils (3 percent)
- Zen soils, steeper sloping (3 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)
- Terlan soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

491—Zen silt loam, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam

27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Dissimilar Minor Components

- Zen soils, steeper sloping (4 percent)
- Horseflat soils (3 percent)
- Alstown soils (2 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)
- Terlan soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

492—Zen silt loam, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 85 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Dissimilar Minor Components

- Horseflat soils (4 percent)
- Terlan soils (4 percent)
- Alstown soils (3 percent)
- Argabak soils (2 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

493—Zen-Argabak-Horseflat complex, 0 to 20 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 55 percent
Argabak and similar soils: 20 percent
Horseflat and similar soils: 15 percent
Dissimilar minor components: 10 percent

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves and side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam

27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Argabak Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 0.9 inch)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: VERY SHALLOW 9-15 PZ (R008XY301WA)

Typical profile
0 to 5 inches; very cobbly loam
5 to 9 inches; very gravelly loam
9 to 13 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes and interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 20 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam

13 to 16 inches; extremely gravelly clay loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Haploxerolls (4 percent)
- Grinrod soils (3 percent)
- Rock outcrop (3 percent)

Major Use

Livestock grazing

494—Zen-Horseflat complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely cobbly loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (4 percent)
- Argabak soils (4 percent)
- Renslow soils (4 percent)
- Kester soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

495—Zen-Horseflat complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 50 percent
Horseflat and similar soils: 35 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely cobbly loam
16 to 26 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (4 percent)
- Argabak soils (4 percent)
- Renslow soils (4 percent)
- Kester soils (3 percent)

Major Uses

Nonirrigated cropland and livestock grazing

496—Zen-Horseflat-Benwy complex, 3 to 8 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 40 percent
Horseflat and similar soils: 30 percent
Benwy and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3s
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 8 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely cobbly loam
16 to 26 inches; unweathered bedrock

Characteristics of Benwy Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Interfluves

Properties and qualities
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 3 to 8 percent
Depth to restrictive features: 40 to 56 inches to indurated duripan; 46 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Very low
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Very slightly saline (about 2 millimhos per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8.2 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 6 inches; silt loam
6 to 12 inches; silt loam
12 to 29 inches; silt loam
29 to 44 inches; clay loam

44 to 47 inches; cemented material
47 to 57 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Kester soils (3 percent)
- Renslow soils (3 percent)
- Argabak soils (1 percent)

Major Uses

Nonirrigated cropland and livestock grazing

497—Zen-Horseflat-Ralls complex, 8 to 15 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 40 percent
Horseflat and similar soils: 30 percent
Ralls, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 10 percent

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely cobbly loam
16 to 26 inches; unweathered bedrock

Characteristics of Ralls Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 3e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 32 inches; gravelly silt loam
32 to 52 inches; gravelly clay loam
52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (2 percent)
- Argabak soils (2 percent)
- Haploxerolls (2 percent)
- Kester soils (2 percent)
- Renslow soils (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

498—Zen-Horseflat-Ralls complex, 15 to 30 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,800 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 35 percent
Horseflat and similar soils: 30 percent
Ralls, bedrock substratum, and similar soils: 20 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Mounds on nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 6.9 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 15 inches; silt loam
15 to 27 inches; silt loam
27 to 36 inches; loam
36 to 46 inches; unweathered bedrock

Characteristics of Horseflat Soil

Landscape position
Landform: Intermounds of nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 14 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.4 inches)

Interpretive groups
Land capability subclass (nonirrigated): 6s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 8 inches; very cobbly loam
8 to 13 inches; very gravelly loam
13 to 16 inches; extremely cobbly loam
16 to 26 inches; unweathered bedrock

Characteristics of Ralls Soil, Bedrock Substratum

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 15 to 30 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 7 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: LOAMY 9-15 PZ (R008XY102WA)

Typical profile
0 to 10 inches; silt loam
10 to 20 inches; silt loam
20 to 32 inches; gravelly silt loam
32 to 52 inches; gravelly clay loam
52 to 56 inches; unweathered bedrock

Dissimilar Minor Components

- Alstown soils (3 percent)
- Haploxerolls (3 percent)
- Kester soils (3 percent)
- Renslow soils (2 percent)
- Rock outcrop (2 percent)
- Rubble land (2 percent)

Major Uses

Nonirrigated cropland and livestock grazing

499—Zen-Lickskillet-Ralls complex, 5 to 45 percent slopes

Map Unit Setting

Major land resource area (MLRA): 8
Elevation: 1,400 to 2,900 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Map Unit Composition

Zen and similar soils: 35 percent
Lickskillet and similar soils: 25 percent
Ralls and similar soils: 25 percent
Dissimilar minor components: 15 percent

Characteristics of Zen Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess over older loess over basalt
Slope range: 5 to 45 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Low (about 5.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 13 inches; silt loam
13 to 24 inches; silt loam

24 to 28 inches; silt loam
28 to 38 inches; unweathered bedrock

Characteristics of Lickskillet Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Colluvium and residuum derived from basalt
Slope range: 5 to 45 percent
Depth to restrictive feature: 12 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline
Sodicity maximum: Nonsodic
Available water capacity (entire profile): Very low (about 1.5 inches)

Interpretive groups
Land capability subclass (nonirrigated): 7s
Ecological site: DRY STONY 9-15 PZ (R008XY201WA)

Typical profile
0 to 4 inches; very cobbly loam
4 to 15 inches; very gravelly loam
15 to 19 inches; unweathered bedrock

Characteristics of Ralls Soil

Landscape position
Landform: Nonglaciated plateaus
Geomorphic position (three-dimensional): Side slopes

Properties and qualities
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 5 to 45 percent
Depth to restrictive feature: None within a depth of 60 inches
Drainage class: Well drained
Capacity of the most limiting soil layer to transmit water (Ksat): Moderately high
Flooding frequency: None
Ponding frequency: None
Seasonal high water table minimum depth: More than 72 inches
Salinity maximum: Nonsaline (about 1 millimho per centimeter)
Sodicity maximum: Sodium adsorption ratio about 5
Available water capacity (entire profile): Moderate (about 8 inches)

Interpretive groups
Land capability subclass (nonirrigated): 4e
Ecological site: COOL LOAMY 9-15 PZ (R008XY103WA)

Typical profile
0 to 13 inches; silt loam
13 to 44 inches; silt loam
44 to 60 inches; gravelly clay loam

Dissimilar Minor Components

- Kiona soils (5 percent)
- Renslow soils (5 percent)
- Rock outcrop (5 percent)

Major Use

Livestock grazing

500—Pits

Map Unit Composition

Pits: 100 percent

Characteristics of Pits

Description of areas: Open excavations from which soil and underlying material have been removed, exposing rock or deposits of gravel
Land capability class: 8

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the county. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the county. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

By Mike Sporcic, agronomist, Natural Resources Conservation Service.

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained (USDA, 1961) and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Areas of cropland have a unique combination of soils, slope, elevation, climate, and other characteristics. The objectives of a cropland management system are to maintain or improve crop production, protect the soils from erosion, and improve the structural quality of the soils.

Management practices that enhance the environment include developing animal watering facilities, planting windbreaks, stubble mulching, and establishing permanent cover. Other environmental concerns, such as proper use of pesticides, capture of sediment in debris basins, and proper disposal of animal waste, should also be considered.

Management practices that protect the soil from erosion can also provide environmental, production, and energy benefits. Erosion control practices include using a crop rotation that includes using cover crops, using green manure crops or grasses and legumes in the rotation, using conservation tillage systems, seeding early in fall, installing check dams, using divided-slope farming, chiseling in fall, and using contour terraces, field windbreaks, and grassed waterways.

Managers of individual fields or farms can use the information given for each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or Cooperative Extension Service.

Approximately 5 percent of the county is used as irrigated cropland. A wide variety of crops are grown, including apples, cherries, peaches, pears, apricots, plums, nectarines, grapes, hay and pasture, and a small amount of wheat, barley, and oats. About 56 percent of the county is used as nonirrigated cropland. The main nonirrigated crop is wheat that is grown in a wheat-summer fallow cropping system. Other nonirrigated crops include barley and oats.

Most of the well drained soils in the irrigated areas along the Columbia River are suited to orchards, vineyards, and hay and pasture. Frost control is needed in areas used as orchards and vineyards where frosts occur late in spring as a result of poor air drainage. Suitable frost control practices include use of heaters, sprinklers, and wind machines. In these areas it is important to consider growing fruit trees that develop later in spring and therefore are less subject to frost damage. Wherever possible, trees should be planted up and down the slope to allow air to drain freely.

Most of the crops grown in the areas of nonirrigated cropland respond well to additions of nitrogen, phosphorus, and sulfur. Ammonium nitrate, ammonium sulfate, and urea fertilizers commonly are used.

Periodic applications of lime are needed in orchards because of the acidifying effect of nitrogen fertilizers. Applications of boron may also be needed in irrigated areas, and foliar applications of micronutrients are used in orchards.

The amount of lime, gypsum, fertilizer, and other amendments applied should be based on soil tests, needs of the crop grown, and expected yields. The local fertilizer dealers can help to determine the kinds and amount of amendments to apply.

The soils in depressions that are used as nonirrigated cropland are the poorly drained and somewhat poorly drained Aquolls and somewhat poorly drained Halaquepts. Many of these wet areas provide critical habitat for wildlife. Barley is more tolerant of a high content of salt and alkali than is other small grain. Tall wheatgrass and tall fescue are the grasses that are best suited to these areas.

Generally, soils that are relatively high in content of organic matter have good tilth. As tilth increases, soil erosion and surface crusting decrease and the water intake rate increases. Therefore, it is important to use crops in the cropping system that will maintain or increase the content of organic matter in the soil. This can be done by incorporating as much residue as possible into the soil. Adequate nitrogen is needed to facilitate the decomposition of the residue. The level of nitrogen may need to be increased temporarily when higher amounts of residue are used. For example, changing from a conventional tillage system to a no-till system would require adjustment of the nitrogen level.

In orchards and vineyards, proper irrigation water management and proper use of horticultural practices, such as cover crops and conservation tillage, minimize the risk of erosion. Applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and stage of crop development to conserve water, reduce leaching of pesticides and plant nutrients, and minimize erosion.

In nonirrigated areas, the risk of water erosion can be reduced by using practices such as seeding grain early in fall, using conservation tillage, double seeding in draws, using divided-slope farming, installing grassed waterways, stripcropping,

cross-slope farming, and installing check dams. Terraces and diversions are best suited to areas of deep and very deep soils. They reduce the length of the slope, minimizing runoff and erosion.

Wind erosion is a hazard on many of the soils in the county. Using barrier strips, strip tillage, windbreaks, stripcropping, and cross-wind seeding help to reduce the risk of wind erosion. Maintaining crop residue on the soil surface and using manure, biosolids, and other material as mulch also help to reduce the risk of wind erosion, maintain or improve the content of organic matter, and conserve moisture.

Compaction and the resulting degradation of the soil structure as a result of excessive tillage and use of heavy equipment are most severe in areas of moist soils that have a silt loam or loam surface layer. Compaction reduces the water intake rate and increases the risk of water erosion. Using minimum tillage, proper timing of tillage in relation to the moisture content, using crop residue, and varying the depth of tillage can reduce soil compaction. Subsoiling or chiseling in fall when the soil is dry breaks up the tillage pan. The risk of compaction is lower with the use of tracked equipment than with the use of wheeled equipment.

Sprinkler and drip irrigation systems are used in the county. These systems allow for the controlled application of irrigation water and if managed properly, reduce the risk of erosion and leaching of plant nutrients and pesticides. Using a cropping system that provides continuous plant cover, such as including hay and pasture or perennial grass, such as creeping fescue, help to reduce the risk of erosion in orchards.

Old stands of hay and pasture can be reestablished by planting small grain crops for 1 or 2 years and then replanting hay and pasture grasses. Conservation tillage should be used when producing small grain.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map unit components in this county is given in the section “Detailed Soil Map Units” under the heading “Interpretive Groups.”

Prime Farmland and Other Important Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 8 percent. About 322,000 acres, or about 27 percent, of the county is considered prime farmland. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

Unique farmland, as defined by the U. S. Department of Agriculture, is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high-quality crops and/or high yields of specific crops when treated and managed according to acceptable farming methods. About 20,000 acres, or nearly 2 percent, of the county is considered unique farmland.

Statewide important farmland is a State designation. The Washington State Conservation Commission is the State agency responsible for designating farmland

of statewide importance. Map units identified as farmland of statewide importance are those that do not qualify as prime or unique farmland but are considered to be important for agriculture. About 249,000 acres, or nearly 21 percent, of the county is considered farmland of statewide importance.

A recent trend in land use in some parts of the county has been the loss of some farmland to other uses. The loss of farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and are not easily cultivated.

The map units in the county that are considered prime farmland, unique farmland, or farmland of statewide importance are listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps.

Rangeland

By Kevin Guinn, range management specialist, Natural Resources Conservation Service.

Approximately 38 percent of the county is rangeland. The larger areas of rangeland are on Badger Mountain; along the steep breaks of the Columbia River, Moses Coulee, and Grand Coulee; along Foster Creek; and in the DelRio area. Other smaller areas of rangeland are intermingled with cropland throughout the county.

Most operations are mainly cow-calf or cow-calf-yearling. The growing season is spring through fall and is 7 to 8 months long. There are many areas of State and Federal grazing land in the county that are leased and used in conjunction with the rangeland. In summer, some ranchers move their cattle to State or Federal grazing land in the surrounding Okanogan, Chelan, and Kittitas Counties. In fall, rangeland is supplemented with crop residue on recently harvested wheatfields. Most ranchers use hay as feed in winter. A few move their operations south to feedlots in the Columbia Basin or to cornfields to graze on the crop residue.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

The native vegetation in the county is dominantly shrub-grass. The dominant plants in areas of silt loam in the southern part of the county are bluebunch wheatgrass and Wyoming big sagebrush. In addition to these plants, the higher-lying glaciated soils in the northern part of the county also support Idaho fescue and threetip sagebrush. Needleandthread is dominant in areas of sand and loamy sand.

The dominant plants in areas of very shallow soils are stiff sagebrush and Sandberg bluegrass. These are the least productive ecological sites, producing 100 to 300 pounds per acre per year. The most productive sites are in depressions and support dominantly basin wildrye and inland saltgrass. These areas produce 2,000 to 3,000 pounds per acre per year.

An ecological site is a distinctive plant community that differs from the plant community of other ecological sites in kind, amount, or proportion of plants. The relationship between soils and vegetation was established during this survey. Each soil map unit component was assigned to an ecological site, which is given in the section “Detailed Soil Map Units” under the heading “Interpretative Groups.” It includes the name and number of the ecological site. Descriptions of the ecological sites are available at the local office of the Natural Resources Conservation Service. Soil properties that affect moisture supply and plant nutrients have the greatest

influence on the productivity of an ecological site. Soil reaction, content of salt, and a seasonal high water table are also important.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook" (http://www.glti.nrcs.usda.gov/technical/publications/nrph.html).

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

The focus of range management is a planned grazing system. A properly designed grazing system incorporates the proper timing of grazing, proper use of forage plants, and proper stocking and distribution of livestock. Commonly, cross-fencing and water developments are also needed. Planned grazing systems should include deferring use of fields at least once every 3 years during the growing season, grazing fields no more than one-half of the growing season, grazing fields no more than once every 3 years during the critical growing period, grazing no more than 50 percent of the current growth during the growing season, and grazing no more than 60 percent of the total annual production when plants are dormant.

Use of brush management, range seeding, and weed control alone may not improve the condition of the range and could cause further deterioration. However, when used in combination with periods of rest and a planned grazing system, they can accelerate improvement of the range.

Steep slopes, soil depth, rock fragments, and areas of Rock outcrop limit the construction of fences, pipelines, and ponds and also restrict brush management and range seeding.

Forest Management

By Dennis J. Robinson, state forester, Natural Resources Conservation Service.

Less than 1 percent of the county is forestland, most of which is under private ownership (fig. 12). Because the annual precipitation rarely is more than 15 inches in the majority of the county, trees only grow in specific areas. The principal tree species are ponderosa pine and Douglas fir. Douglas fir is primarily on the north-facing slopes of Badger Mountain and in the canyons and draws above the east bank of the Columbia River.

The forests in the county are uneven-aged stands with an understory of shrubs, grasses, and forbs. These vegetative types are characterized by a native grassland community with scattered trees in favorable microsites. The forests are used for grazing, which has reduced the abundance of some more favorable grass species. Fire suppression favors Douglas fir and has resulted in an increase of the acreage of stands consisting primarily of a dense Douglas fir overstory.

The stocking level of most of these forests is low. Harvesting of timber occurs mainly in the Badger Mountain area. Logs are transported to mills located outside of



Figure 12.—Forestland in an area of Stemilt-Cordy complex, 30 to 60 percent slopes, on the north side of Badger Mountain in background. Cropland in an area of Hanning-McCue-Badgermont complex, 8 to 15 percent slopes, adjacent to forestland. Cropland in an area of Farmer ashy fine sandy loam, 0 to 8 percent slopes, in foreground.

the county. Reforestation is difficult because of the low precipitation and high temperature. Competition from shrubs and grasses can be reduced by use of grazing management systems. These systems reduce the kinds and amount of vegetation that compete with trees. Areas that are under harsh conditions are unfavorable for tree regeneration. If the overstory is removed and the soil is disturbed in these areas, noxious weeds can be a serious problem.

More detailed information is available in the National Forestry Manual (USDA, National Forestry Manual), which is available at the local office of the National Resources Conservation Service.

Windbreaks and Environmental Plantings

Windbreaks protect soil, farm buildings, and livestock from wind and snow. They can also be used to protect orchards, vineyards, and gardens. Well-planted windbreaks provide significant habitat for a variety of wildlife species. Newly planted windbreaks require irrigation in summer to ensure survival and desired height of windbreak species.

One- to five-row field windbreaks can significantly reduce the amount of soil loss from wind erosion on open fields during the windy season (fig. 13). Field windbreaks are narrow plantings of trees and shrubs placed on the boundaries of fields and within fields at specific intervals at right angles to the prevailing wind. The width of intervals within a field depends on the erodibility of the soil. Windbreaks can also help to conserve energy. Two- to five-row windbreaks near farm buildings and homes can significantly reduced energy consumption. Appropriate placement of trees and shrubs helps to minimize drifting of snow on farmsteads and along roads.

Environmental plantings provide beauty to homes and buildings. They also provide noise abatement. The plantings consist primarily of evergreen trees and shrubs. They are closely spaced, and as with other plantings, healthy and robust stock of suitable species should be planted on a well-prepared site. Maintenance of the site helps to ensure survival of the plants.



Figure 13.—Five-row windbreak surrounding a farmstead in an area of Alstown silt loam, 0 to 8 percent slopes.

Wildlife Habitat

Douglas County has a unique variety of habitats for use by wildlife. Wildlife native to the county include typical rangeland species such as mule deer, coyote, black-tailed jackrabbit, pygmy rabbit, sage grouse, sage thrasher, sage sparrow, burrowing owl, prairie falcon, and raven.

Much of the land in the northern part of the county is interspersed with potholes, lakes, wet meadows, and drainageways formed as a result of glacial activity and flooding in areas of channeled scabland (fig. 14). Small low-lying areas near orchards can be flooded by irrigation runoff or have a high water table because of the dams on the Columbia River. These areas support a wide variety of herbaceous, woody wetland and riparian vegetation. The wet areas provide habitat for muskrat, beaver, waterfowl, and wading birds as well as drinking water, food, and cover for terrestrial animals. Wet meadows are critical for brood rearing and wintering of sage grouse and sharp-tailed grouse.

Scattered stands of ponderosa pine and Douglas fir are in the northern part of the county, on the breaks of the Columbia River and on Badger Mountain. Stands typically do not have sufficient canopy cover to support woodland wildlife, but they do provide nesting and perching sites for hawks, eagles, and numerous other birds.

The reservoirs on the Columbia River provide large nesting areas for migrating waterfowl, which feed on crop residue in adjoining areas of cropland.

Much of the native rangeland in the county has been converted to cropland. Areas where the cropland is interspersed with rangeland and riparian and wetland plant communities provide habitat for game birds, such as pheasants, California quail, and gray partridge. Habitat for chukar partridge is associated with areas of Rock outcrop, Rubble land, and channeled scabland.

The conversion of rangeland to cropland has reduced the amount of habitat available for rangeland wildlife and has reduced its carrying capacity. Extensive cultivation, burning, herbicide spraying, and overgrazing contribute to the elimination



Figure 14.—Wet, depressional area of Aquolls-Halaquepts complex, nearly level, surrounded by areas of Timentwa-Siweeka complex, 3 to 8 percent slopes, used as cropland.

of critical wildlife cover. Crop production, however, provides an improved food source for waterfowl and upland game birds.

There are many opportunities to improve wildlife habitat in the county. Establishment of permanent vegetation on field borders, roadsides, and field terraces provides cover. Windbreaks needed to control wind erosion provide cover in winter, nesting areas, and food for several species. Use of grassed waterways and minimum tillage also enhance wildlife habitat.

Development of springs and ponds provides drinking water for wildlife and livestock. Tree snags should be retained for use by numerous cavity-nesting birds.

Waterfowl nesting habitat can be improved by maintaining undisturbed nesting cover adjacent to streams, lakes, and ponds. Proper livestock grazing of the areas of rangeland help to maintain a diverse and abundant plant community that provides food and cover for wildlife.

Douglas County also provides habitat for many wildlife species on the Priority Habitats and Species list for the State of Washington. These include sage grouse, sharp-tailed grouse, pygmy rabbit, golden eagle, bald eagle, prairie falcon, burrowing owl, flammulated owl, loggerhead shrike, and Washington ground squirrel. These species inhabit the shrub-steppe, meadow-steppe, and mountainous-shrub habitats, coulees, and the historical riparian-shrub drainageways that were unique to the northern part of the county prior to the 1930's.

Sharp-tailed grouse require higher quality shrub-meadow-steppe habitat for use as leks and habitat in winter. Sage grouse require moderately dense shrub cover. Pygmy rabbit require sagebrush-shrub cover with a density of 22 to 35 percent, which generally is a higher density than is preferred for rangeland grazing.

Loggerhead shrike and Washington ground squirrel can tolerate a higher intensity of grazing than most of the other species on the list.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 6 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages

are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 7 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 7, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity. The estimates in the table indicate the rate of water movement, in inches per hour, when

the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 7, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 7 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter,

and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 8 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 9 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These

consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 9 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 9 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent

of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 10 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1975; Soil Survey Staff, 1996). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 11 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerolls (*Argi*, meaning white clay, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Argixerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, superactive, mesic Typic Argixerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the taxonomic

unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (USDA, 1975) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1996). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Aarup Series

Soil depth: Shallow and very shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 15 percent
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic, shallow Vitritorrandic Durixerolls

Typical pedon of Aarup ashy fine sandy loam, 0 to 8 percent slopes (fig. 15), about 1 mile northwest of Farmer; about 800 feet north and 250 feet east of the southwest corner of sec. 33, T. 25 N., R. 24 E. (lat. 47°36'58" N., long. 119°49'54" W.)

Ap1—0 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic, common very fine and fine roots; few very fine interstitial and tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Ap2—7 to 9 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine and very fine tubular and interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bw—9 to 16 inches; brown (10YR 5/3) ashy very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine tubular and interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 5 percent basalt gravel and duripan fragments; slightly alkaline; abrupt wavy boundary.

2Bkqm—16 to 26 inches; very pale brown (10YR 8/2) indurated duripan cemented with secondary carbonates and silica, light yellowish brown (10YR 6/4) moist; many distinct continuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on surface of duripan; violently effervescent; abrupt wavy boundary.

3R—26 inches; basalt.

The mollic epipedon is 4 to 12 inches thick. Thickness of the volcanic ash influence and depth to the duripan are 4 to 20 inches. Depth to bedrock is 20 to 40 inches.

The Ap horizon has chroma of 2 or 3 moist. The horizon is 0 to 15 percent duripan fragments.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist. It is ashy very fine sandy loam, ashy fine sandy loam, or ashy sandy loam with 0 to 15 percent gravel and 0 to 3 percent cobbles of indurated duripan or basalt. The horizon is slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated and is cemented with carbonates and silica. It is 4



Figure 15.—Profile of an Aarup ashy fine sandy loam. The duripan is at a depth of about 7 inches. Numerals on the tape are in feet.

to 24 inches thick. It is fractured with duripan plates that average 4 to 14 inches wide and 1 to 4 inches thick.

Achelake Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Drainageways of nonglaciated plateaus
Parent material: Loess and volcanic ash
Slope range: 0 to 30 percent
Elevation: 2,000 to 2,500 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Haploxerolls

Typical pedon of Achelake ashy fine sandy loam in an area of Renslow-Achelake-Willis complex, 8 to 15 percent slopes, about 6 miles south of Jameson Lake; about

2,000 feet east and 110 feet north of the southwest corner of sec. 7, T. 24 N., R. 26 E. (lat. 47°36'12" N., long. 119°38'18" W.)

Ap—0 to 5 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; few very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

A—5 to 13 inches; brown (10YR 4/3) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; few fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

BA—13 to 20 inches; brown (10YR 4/3) ashy silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; few fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Bw1—20 to 48 inches; brown (10YR 5/3) ashy silt loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; few very fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Bw2—48 to 60 inches; brown (10YR 5/3) ashy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral.

The mollic epipedon is 15 to 20 inches thick. Thickness of the volcanic ash influence is more than 60 inches. The profile has 0 to 5 percent rock fragments throughout.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The BA horizon has value of 4 or 5 dry. It is ashy fine sandy loam, ashy loam, or ashy silt loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry and 3 or 4 moist. It is ashy loam, ashy fine sandy loam, or ashy silt loam.

Aeneas Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess over glacial outwash
Slope range: 3 to 8 percent
Elevation: 800 to 1,400 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Aeneas fine sandy loam, 3 to 8 percent slopes, about 9 miles northeast of Tag Ear Lake; about 2,400 feet east and 2,300 feet north of the southwest corner of sec. 18, T. 30 N., R. 29 E. (lat. 48°05'55" N., long. 119°13'26" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine interstitial and vesicular pores; slightly alkaline; gradual wavy boundary.
Bw—10 to 24 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic, few very fine roots; few fine interstitial and vesicular pores; slightly alkaline; gradual wavy boundary.
2C1—24 to 30 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; moderately alkaline; gradual wavy boundary.
2C2—30 to 60 inches; gray (10YR 6/1) sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; 5 percent gravel; moderately alkaline.

The mollic epipedon is 8 to 14 inches thick. Depth to the sandy substratum material (2C horizon) is 20 to 40 inches. The particle-size control section has 0 to 10 percent rock fragments. The upper part of the particle-size control section is fine sandy loam or sandy loam and has 30 to 50 percent fine sand or coarser.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It is fine sandy loam or sandy loam. It has 0 to 10 percent gravel.

The 2C horizon has chroma of 1 or 2 dry or moist. It is loamy fine sand or loamy sand. It has 0 to 10 percent gravel.

The 2C2 horizon has hue of 10YR or 2.5Y or is multicolored. It has value of 5 to 7 dry and 3 to 6 moist and chroma of 2 to 4 dry or moist. It is loamy fine sand, loamy sand, sand, or coarse sand. It has 0 to 10 percent gravel.

Alecanyon Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Eskers, kames, and terraces of glaciated plateaus
Parent material: Loess mixed with volcanic ash over glacial outwash
Slope range: 0 to 65 percent
Elevation: 1,000 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls

Typical pedon of Alecanyon very cobbly ashy fine sandy loam in an area of Alecanyon-Cachebutte complex, 0 to 8 percent slopes, about 8 miles west and 4 miles north of Coulee Dam; about 2,900 feet north and 400 feet west of the southeast corner of sec. 10, T. 29 N., R. 29 E. (lat. 48°01'41" N., long. 119°08'53" W.)

A—0 to 12 inches; dark grayish brown (10YR 4/2) very cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 25 percent gravel and 30 percent cobbles; neutral; abrupt smooth boundary.
2AB—12 to 22 inches; brown (10YR 5/3) extremely gravelly loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine interstitial pores; 5 percent coarse and

very coarse sand-sized volcanic ash; 45 percent gravel and 15 percent cobbles; neutral; gradual smooth boundary.

2Bq1—22 to 31 inches; yellowish brown (10YR 5/4) extremely cobbly loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and common fine roots; many fine and medium interstitial pores; common distinct silica coatings that are very pale brown (10YR 8/3) when dry on underside of gravel and cobbles; 35 percent gravel and 35 percent cobbles; neutral; gradual smooth boundary.

2Bq2—31 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; common distinct and prominent coatings of silica that are very pale brown (10YR 8/3) when dry on underside of gravel and cobbles; 50 percent gravel and 20 percent cobbles; neutral.

The mollic epipedon and volcanic ash influence are 10 to 14 inches thick. Where present, depth to the sandy-skeletal material (2AB horizon) is 10 to 14 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It has 35 to 60 percent gravel and cobbles. It has 10 to 15 percent coarse and very coarse sand-sized volcanic ash. It is very cobbly ashy fine sandy loam or very cobbly ashy loamy sand.

The 2AB horizon has value of 5 or 6 dry. It has 5 to 10 percent coarse and very coarse sand-sized volcanic ash. It has 35 to 65 percent gravel and cobbles. It is extremely cobbly loamy coarse sand, very fine sandy loam, very cobbly loamy coarse sand, or extremely gravelly loamy coarse sand.

The 2Bq horizon has 50 to 75 percent rock fragments. It is very gravelly coarse sand, extremely cobbly coarse sand, extremely cobbly loamy coarse sand, extremely gravelly coarse sand, or very cobbly coarse sand.

Alsash Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 30 percent
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Vitritorrandic Argixerolls

Typical pedon of Alsash ashy fine sandy loam in an area of Alsash-Slusser complex, 0 to 8 percent slopes, about 1.5 miles northwest of Withrow; about 1,500 feet north and 1,500 feet west of the southeast corner of sec. 20, T. 26 N., R. 24 E. (lat. 47°43’56” N., long. 119°50’20” W.)

Ap—0 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; few fine and medium interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

A—7 to 11 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard,

friable, nonsticky and slightly plastic; common very fine and few fine roots; few fine and medium interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt1—11 to 18 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine interstitial pores; few faint clay films on faces of peds; 12 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt2—18 to 28 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; strong medium and coarse prismatic structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine and medium interstitial pores; common distinct clay films on faces of peds; 10 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; abrupt wavy boundary.

3Bkq1—28 to 38 inches; light yellowish brown (10YR 6/4) gravelly fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive with discontinuous cementation; very hard, very firm and brittle, nonsticky and nonplastic; few faint clay films on top of horizon; 30 percent durinodes and cemented cicada casts; common fine filaments and soft masses of secondary carbonates throughout; strongly effervescent; moderately alkaline; clear wavy boundary.

3Bkq2—38 to 60 inches; white (10YR 8/2) very gravelly fine sandy loam, light yellowish brown (10YR 6/4) moist; massive with discontinuous cementation; very hard, very firm and brittle, nonsticky and nonplastic; 45 percent durinodes and cemented cicada casts; common fine filaments and soft masses of secondary carbonates throughout; strongly effervescent; moderately alkaline.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 18 inches. The particle-size control section has 10 to 18 percent clay and less than 15 percent fine sand or coarser, and it averages less than 15 percent volcanic glass 0.02 to 2.0 millimeters in size. Depth to the 3Bkq horizon and secondary carbonates is 20 to 40 inches.

The Ap horizon has chroma of 2 or 3 moist.

The A horizon has chroma of 3 or 4 dry and 2 or 3 moist. It is ashy fine sandy loam, ashy very fine sandy loam, or ashy silt loam.

The 2Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry.

The 3Bkq horizon has value of 6 to 8 dry and 4 to 6 moist and chroma of 2 to 4 dry and 3 or 4 moist. It is gravelly fine sandy loam, very gravelly fine sandy loam, or gravelly silt loam. It has 20 to 50 percent durinodes and cemented cicada casts that are cemented with secondary carbonates and silica.

Alstown Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess
Slope range: 0 to 65 percent
Elevation: 1,500 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Argiduridic Argixerolls

Typical pedon of Alstown silt loam, 0 to 8 percent slopes, about 13 miles southeast of Waterville; about 175 feet south and 100 feet west of the northeast corner of sec. 29, T. 24 N., R. 24 E. (lat. 47°33'13" N., long. 119°50'00" W.)

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine and common medium roots; few fine interstitial pores; 1 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

A—7 to 13 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine roots; few fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bt1—13 to 25 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine interstitial and tubular pores; few faint clay films on faces of peds; 5 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

Bt2—25 to 33 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few fine interstitial and tubular pores; few faint clay films on faces of peds; 3 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

2Bkq1—33 to 37 inches; light yellowish brown (10YR 6/4) very gravelly silt loam, brown (10YR 4/3) moist; massive; hard, extremely firm and brittle, nonsticky and slightly plastic; few very fine and fine roots; few fine interstitial pores; 45 percent durinodes and cemented cicada casts; common fine filaments of secondary carbonates and disseminated carbonates throughout matrix; 7 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline; abrupt smooth boundary.

2Bkq2—37 to 54 inches; light yellowish brown (10YR 6/4) very gravelly silt loam, brown (10YR 4/3) moist; massive; hard, very friable, nonsticky and slightly plastic; few fine tubular pores; 35 percent durinodes; many fine filaments of secondary carbonates throughout matrix; violently effervescent; moderately alkaline; gradual irregular boundary.

3Bk—54 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; hard, very friable, nonsticky and slightly plastic; few fine tubular pores; common fine filaments of secondary carbonates and disseminated carbonates throughout matrix; 8 percent calcium carbonate equivalent; violently effervescent; moderately alkaline.

The mollic epipedon is 10 to 18 inches thick. The particle-size control section has 10 to 18 percent clay and less than 15 percent fine sand or coarser. Depth to the 2Bkq horizon and secondary carbonates is 20 to 40 inches.

The A horizon has chroma of 3 or 4 dry and 2 or 3 moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist.

The 2Bkq1 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It has 35 to 45 percent durinodes and cicada casts that are cemented with secondary carbonates and silica.

The 2Bkq2 horizon has value of 4 or 5 moist and chroma of 3 or 4 dry or moist. It has 35 to 45 percent durinodes and cicada casts that are cemented with secondary carbonates and silica.

The 3Bk horizon has value of 4 or 5 moist and chroma of 3 or 4 dry or moist. It is silt loam or fine sandy loam.

Aquolls

Soil depth: Very deep
Drainage class: Very poorly drained and poorly drained
Landform: Drainageways and depressions of plateaus
Parent material: Recent alluvium over older alluvium, outwash, or glaciolacustrine deposits
Slope range: 0 to 3 percent
Elevation: 1,500 to 3,200 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Aquolls

Representative pedon of Aquolls in an area of Aquolls-Halaquepts complex, nearly level, about 8 miles west of Coulee Dam; about 2,500 feet south and 250 feet east of the northwest corner of sec. 15, T. 29 N., R. 29 E. (lat. 48°00'46" N., long. 119°10'03" W.)

A1—0 to 13 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; many fine and medium roots; common very fine and fine tubular pores; disseminated carbonates; strongly effervescent; moderately alkaline; abrupt wavy boundary.

A2—13 to 28 inches; black (10YR 2/1) silt loam, dark gray (10YR 5/1) dry; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular and interstitial pores; disseminated carbonates; strongly effervescent; strongly alkaline; gradual wavy boundary.

A3—28 to 37 inches; very dark brown (10YR 2/2) silt loam, gray (10YR 5/1) dry; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; many fine and medium tubular and interstitial pores; common distinct redoximorphic concentrations that are brown (7.5YR 4/4) when moist on faces of peds; slightly alkaline; gradual wavy boundary.

Bg1—37 to 49 inches; very dark grayish brown (2.5Y 3/2) silt loam, light gray (10YR 7/1) dry; massive; hard, friable, slightly sticky and plastic; few fine roots; many fine and medium tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash; common distinct redoximorphic concentrations that are brown (7.5YR 4/4) when moist on faces of peds; slightly alkaline; abrupt smooth boundary.

Bg2—49 to 60 inches; olive gray (5Y 5/2) clay loam, light gray (5Y 7/1) dry; massive; hard, very firm, moderately sticky and moderately plastic; many fine tubular pores; 25 percent coarse and very coarse sand-sized volcanic ash; many distinct redoximorphic concentrations that are brown (7.5YR 4/4) when moist on faces of peds; neutral.

The content of coarse and very coarse sand-sized volcanic ash ranges from a trace to 35 percent. The frequency of flooding is frequent or occasional in winter and spring.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 3 dry and 1 or 2 moist. It is moderately acid to moderately alkaline.

The Bg horizon has hue of 5Y, 2.5Y, or 10YR; value of 5 to 7 dry and 3 to 5 moist; and chroma of 1 or 2 dry and 2 or 3 moist. The redoximorphic concentrations have color of 7.5YR 5/6 or 7.5YR 4/4, and the redoximorphic depletions have color of 5B 4/1. The horizon is silt loam, loam, silty clay loam, clay loam, fine sandy loam, or loamy sand. In some areas it has as much as 35 percent rock fragments and is stratified. It is neutral to strongly alkaline.

Argabak Series

Soil depth: Very shallow
Drainage class: Well drained
Landform: Glaciated and nonglaciated plateaus
Parent material: Residuum and colluvium derived from basalt
Slope range: 0 to 65 percent
Elevation: 1,000 to 3,500 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls

Typical pedon of Argabak very cobbly loam (fig. 16) in an area of Touhey-Argabak complex, 0 to 15 percent slopes, about 2 miles southeast of Mansfield; about 1,000 feet north of the southwest corner of sec. 31, T. 27 N., R. 26 E. (lat. 47°46'58" N., long. 119°36'58" W.)

A—0 to 2 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, firm, nonsticky and slightly plastic; many very fine and fine roots; common fine and medium tubular pores; 20 percent gravel and 15 percent cobbles with 3 percent cobbles and stones on surface; neutral; abrupt wavy boundary.

Bt1—2 to 6 inches; yellowish brown (10YR 5/4) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine interstitial pores; few faint clay films on faces of peds; 15 percent gravel and 20 percent cobbles; slightly alkaline; clear wavy boundary.

Bt2—6 to 10 inches; yellowish brown (10YR 5/4) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly sticky and slightly plastic; common very fine and fine roots; common very fine and few fine interstitial pores; few prominent brown (10YR 5/2) clay films on faces of peds; 20 percent gravel and 20 percent cobbles; slightly alkaline; abrupt wavy boundary.

R—10 inches; basalt.

The mollic epipedon is 5 to 7 inches thick and includes all or part of the argillic horizon. The particle-size control section averages 45 to 75 percent rock fragments, and the argillic horizon averages 18 to 35 percent clay. Depth to bedrock is 4 to 10 inches. The profile is neutral or slightly alkaline.

The A horizon has value of 3 to 5 dry or moist and chroma of 2 to 4 dry or moist. It is very cobbly loam or extremely cobbly loam.

The Bt horizon has value of 3 to 5 dry or moist and chroma of 2 to 4 dry or moist. It is very gravelly clay loam, very gravelly loam, or very cobbly loam.



Figure 16.—Profile of an Argabak very cobbly loam. Basalt is at a depth of 6 inches. Numerals on the tape are in feet.

Badge Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 65 percent
Elevation: 1,800 to 4,000 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 80 to 165 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls

Typical pedon of Badge very cobbly silt loam, 30 to 65 percent slopes (fig.17), about 6 miles southeast of the top of Badger Mountain; about 800 feet north of the center of sec. 5, T. 23 N., R. 22 E. (lat. 47°31'05" N., long. 120°06'04" W.)

A1—0 to 8 inches; dark grayish brown (10YR 4/2) very cobbly silt loam, very dark



Figure 17.—Profile of a Badge very cobbly silt loam. Loess and volcanic ash over glacial outwash is at a depth of about 30 inches. Numerals on the tape are in feet.

brown (10YR 2/2) moist; moderate medium granular structure; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine roots; many fine and medium tubular pores; 20 percent gravel, 25 percent cobbles, and 3 percent stones of basalt; neutral; gradual smooth boundary.

A2—8 to 13 inches; brown (10YR 5/3) cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; hard, firm, slightly sticky and plastic; common fine roots; few fine tubular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

Bt—13 to 28 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few medium tubular pores; few faint clay films lining pores and on faces of peds; 30 percent gravel, 40 percent cobbles, and 5 percent stones; neutral; gradual smooth boundary.

C—28 to 60 inches; light yellowish brown (10YR 6/4) very cobbly silt loam, brown (10YR 4/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; 20 percent gravel, 30 percent cobbles, and 5 percent stones; slightly alkaline.

The mollic epipedon is 10 to 20 inches thick. The particle-size control section is 20 to 35 percent clay and 35 to 90 percent rock fragments.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is cobbly or very cobbly silt loam. It is neutral or slightly alkaline.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry, and chroma of 2 to 4 dry or moist. It is very cobbly or extremely cobbly clay loam, silt loam, or loam. It is neutral or slightly alkaline.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 6 dry and 3 to 5 moist, and chroma of 2 to 4 moist or dry. It is very cobbly, very gravelly, or extremely cobbly silt loam, clay loam, or loam. It is slightly alkaline or moderately alkaline.

Badgermont Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Drainageways of nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 15 percent
Elevation: 2,500 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical pedon of Badgermont cobbly loam in an area of Ebadlow-Spofford-Badgermont complex, 3 to 8 percent slopes, about 4 miles south of Waterville; about 2,200 feet south and 250 feet west of the northeast corner of sec. 3, T. 24 N., R. 22 E. (lat. 47°36'24" N., long. 120°02'54" W.)

Ap—0 to 9 inches; brown (10YR 4/3) cobbly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine interstitial pores; 5 percent gravel and 15 percent cobbles; neutral; clear wavy boundary.

Bt1—9 to 16 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine interstitial and tubular pores and few medium tubular pores; 10 percent gravel and 15 percent cobbles; many distinct clay films on faces of peds; neutral; clear wavy boundary.

Bt2—16 to 25 inches; brown (10YR 4/3) very cobbly loam, dark brown (10YR 3/3) moist; very hard, friable, slightly sticky and moderately plastic; few very fine roots; few fine interstitial and tubular pores; common distinct clay films on faces of peds; 20 percent gravel and 30 percent cobbles; neutral; clear wavy boundary.

Bt3—25 to 35 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine irregular tubular pores; many distinct clay films on faces of peds; 30 percent gravel and 30 percent cobbles; neutral; abrupt wavy boundary.

Bt4—35 to 38 inches; light yellowish brown (10YR 6/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine tubular pores; common distinct clay films on faces of peds;

30 percent rounded gravel and 40 percent rounded cobbles; neutral; abrupt smooth boundary.
2R—38 inches; basalt.

The mollic epipedon is 20 to 26 inches thick, and it includes the upper part of the Bt horizon. The particle-size control section has 18 to 27 percent clay and 25 to 55 percent rock fragments. The lower part of the Bt horizon averages 50 to 70 percent gravel and cobbles. Depth to bedrock is 20 to 40 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry. It has 15 to 25 percent gravel and cobbles. Base saturation is 60 to 75 percent.

The Bt1 and Bt2 horizons have value of 4 or 5 dry and chroma of 2 or 3 dry. They are cobbly loam or very cobbly loam. Base saturation generally is 65 to 85 percent, but it is less than 75 percent in some areas.

The Bt3 and Bt4 horizons have value of 5 or 6 dry and 4 or 5 moist and chroma of 3 or 4 moist. They are very cobbly clay loam or extremely cobbly clay loam. Base saturation is 75 to 90 percent.

Bagdad Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess
Slope range: 0 to 15 percent
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calcic Argixerolls

Typical pedon of Bagdad silt loam, 0 to 8 percent slopes, about 5 miles northeast of East Wenatchee; about 400 feet north and 20 feet west of the southeast corner of sec. 27, T. 23 N., R. 21 E. (lat. 47°27'01" N., long. 120°10'29" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, friable, nonsticky and slightly plastic; common very fine and fine roots; many fine and very fine interstitial pores; neutral; gradual wavy boundary.
A—10 to 14 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine and very fine interstitial pores; neutral; gradual wavy boundary.
Bt1—14 to 24 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and very fine interstitial pores; few faint clay films on faces of peds; neutral; gradual wavy boundary.
Bt2—24 to 40 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and very fine interstitial pores; common prominent clay films on faces of peds; neutral; gradual wavy boundary.
2Btk—40 to 60 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine and fine interstitial pores; few brown (10YR 5/3) prominent clay films on faces of peds; common

distinct coatings of secondary carbonates on faces of peds and disseminated carbonates throughout matrix; strongly effervescent; moderately alkaline.

The mollic epipedon is 12 to 20 inches thick. The particle-size control section has 10 to 18 percent clay and 0 to 10 percent particles coarser than fine sand. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist. It is slightly acid or neutral.

The Bt horizon has value of 5 or 6 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is neutral or slightly alkaline.

The Btk horizon has value of 5 to 7 dry and 4 or 5 moist and chroma of 3 or 4 dry or moist. It is moderately alkaline or strongly alkaline.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Bakeoven Series

Soil depth: Very shallow
Drainage class: Well drained
Landform: Glaciated and nonglaciated plateaus
Parent material: Residuum and colluvium derived from basalt
Slope range: 0 to 55 percent
Elevation: 1,200 to 2,900 feet
Mean annual precipitation: 7 to 13 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 200 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls

Typical pedon of Bakeoven very cobbly loam, 0 to 35 percent slopes, about 0.5 mile west of Ephrata; about 60 feet east and 1,590 feet south of the northwest corner of sec. 16, T. 21 N., R. 26 E. (lat. 47°19'14" N., long. 119°34'29" W.)

A—0 to 4 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common coarse vesicular pores; 30 percent gravel and 25 percent cobbles; slightly alkaline; abrupt smooth boundary.

Bw—4 to 7 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; common faint clay films on faces of peds; 35 percent gravel and 15 percent cobbles; slightly alkaline; abrupt irregular boundary.

R—7 inches; basalt.

The mollic epipedon is 2 to 10 inches thick. The profile typically has 50 to 90 percent rock fragments, but it has as little as 35 percent in the upper part in some areas. Depth to bedrock is 4 to 10 inches. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 2 to 4 moist and chroma of 2 or 3 dry or moist. It is very gravelly loam or very cobbly clay loam.

Beca Series

Soil depth: Moderately deep
Drainage class: Well drained

Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 3 to 40 percent
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Beca ashy fine sandy loam, 8 to 15 percent slopes, about 4 miles north of Waterville; about 2,300 feet south and 20 feet east of the northwest corner of sec. 33, T. 26 N., R. 22 E. (lat. 47°42'30" N., long. 120°05'30" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and common fine roots; few very fine tubular pores and common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; slightly acid; abrupt smooth boundary.

A—8 to 14 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure parting to weak medium and fine subangular blocky; slightly hard, friable, nonsticky and slightly plastic; many very fine roots; common very fine and few fine tubular pores and common very fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

BA—14 to 23 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to weak coarse and medium subangular blocky; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common very fine and few fine tubular and interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt1—23 to 31 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores and few very fine and fine interstitial pores; few faint clay bridges between sand grains on faces of peds; common faint stress surfaces on faces of peds; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; abrupt wavy boundary.

2Bt2—31 to 38 inches; yellowish brown (10YR 5/4) gravelly silt loam, dark grayish brown (10YR 4/2) moist; strong coarse and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine tubular pores and common very fine and few fine interstitial pores; few faint clay films on faces of peds and lining pores; common distinct clay films that are strong brown (7.5YR 5/6) when moist on rock fragments; common distinct stress surfaces on faces of peds; few distinct silica coatings that are white (10YR 8/1) when dry on rock fragments; 1 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

3R—38 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence is 20 to 25 inches. The particle-size control section has 10 to 18 percent clay, more than 15 percent fine sand or coarser, and 10 to 25 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry and 1 or 2 moist.

The A and BA horizons have chroma of 2 or 3 dry. They are ashy fine sandy loam, ashy silt loam, or ashy loam. They are slightly acid or neutral.

The 2Bt1 horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam or loam with 5 to 15 percent rock fragments. It is neutral or slightly alkaline.

The 2Bt2 horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It is gravelly silt loam, cobbly silt loam, or gravelly loam with 15 to 35 percent rock fragments. It is neutral or slightly alkaline.

Benwy Series

Soil depth: Deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess mixed with colluvium over a duripan over basalt
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Calciargidic Argixerolls

Typical pedon of Benwy silt loam, 3 to 8 percent slopes, about 12 miles south of Jameson Lake; about 2,600 feet north and 50 feet east of the southwest corner of sec. 1, T. 23 N., R. 25 E. (lat. 47°31'02" N., long. 119°37'45" W.)

Ap—0 to 6 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine roots; few fine vesicular pores; neutral; clear smooth boundary.

A—6 to 12 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common fine tubular and interstitial pores; neutral; clear wavy boundary.

Bt—12 to 29 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and medium tubular and interstitial pores; few faint dark brown (10YR 3/2) clay films on faces of peds; slightly alkaline; clear wavy boundary.

2Btk1—29 to 41 inches; dark grayish brown (10YR 4/2) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine prismatic structure; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine interstitial pores; many distinct clay films that are very dark grayish brown (10YR 3/2) when moist on faces of peds; many distinct coatings of secondary carbonates on faces of peds; strongly effervescent; moderately alkaline; clear wavy boundary.

2Btk2—41 to 44 inches; yellowish brown (10YR 5/4) gravelly clay loam, brown (10YR 4/3) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; few very fine interstitial pores; common distinct clay films that are very dark grayish brown (10YR 3/2) when moist on faces of peds

and rock fragments; many distinct coatings of secondary carbonates on faces of peds and rock fragments; 25 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—44 to 47 inches; 60 percent very pale brown (10YR 8/2) and 40 percent light yellowish brown (10YR 6/4) indurated duripan that is cemented with secondary carbonates and silica; many distinct coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on most duripan surfaces; violently effervescent; abrupt wavy boundary.

2R—47 inches; basalt.

The mollic epipedon is 10 to 15 inches thick. The particle-size control section averages 15 to 18 percent clay and less than 10 percent gravel and cobbles. Depth to secondary carbonates is 24 to 38 inches. Depth to the duripan is 40 to 56 inches. Depth to bedrock is 46 to 60 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist and 3 or 4 dry. It is neutral or slightly alkaline.

The Bt horizon has value of 5 or 6 dry and chroma of 3 or 4 moist. It is silt loam or loam with 0 to 5 percent gravel. It is slightly alkaline or moderately alkaline.

The 2Btk horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 to 4 dry and 3 or 4 moist. It is loam or clay loam with 0 to 25 percent gravel and 0 to 5 percent cobbles. It is slightly alkaline to strongly alkaline.

Some pedons have a very gravelly loam 2Bkq horizon above the duripan.

The Benwy soils in this survey area are a taxadjunct to the Benwy series. The soils in the Benwy series are fine-loamy and average 18 to 28 percent clay. The Benwy soils in this survey area are coarse-loamy and average 15 to 18 percent clay.

Beverly Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Fans and low river terraces
Parent material: Recent sandy and gravelly alluvium
Slope range: 0 to 15 percent
Elevation: 600 to 2,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Torrifluvents

Typical pedon of Beverly cobbly fine sandy loam, 0 to 8 percent slopes, about 0.5 mile north of Orondo; about 1,320 feet north and 400 feet west of the southeast corner of sec. 29, T. 25 N., R. 21 E. (lat. 47°38'05" N., long. 120°13'15" W.)

Ap—0 to 5 inches; grayish brown (10YR 5/2) cobbly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few fine tubular pores; 15 percent cobbles and 5 percent gravel; slightly alkaline; clear smooth boundary.

C1—5 to 14 inches; stratified light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) gravelly fine sandy loam, dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline; clear smooth boundary.

C2—14 to 20 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 35 percent gravel and 15 percent cobbles; few thin strata of

fine sandy loam that is grayish brown (10YR 5/2) dry and very dark grayish brown (10YR 3/2) moist; slightly alkaline; clear smooth boundary.

2C3—20 to 60 inches; multicolored extremely gravelly loamy coarse sand; single grain; loose, nonsticky and nonplastic; 70 percent gravel, 10 percent cobbles, and 5 percent stones; slightly alkaline.

Depth to the 2C horizon is 14 to 25 inches. Rare flooding occurs in winter and spring.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The C horizon has value of 4 to 6 dry and 2 to 4 moist and chroma of 2 to 4 moist or dry. It is stratified gravelly or very gravelly sandy loam, loamy sand, or fine sandy loam.

The 2C horizon ranges widely in color. The fine-earth fraction is sand, loamy sand, or loamy coarse sand. The horizon has 40 to 90 percent rock fragments.

Brays Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 3 to 65 percent
Elevation: 1,200 to 1,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Haploxerolls

Typical pedon of Brays ashy fine sandy loam in an area of Brays-Entiat-Rock outcrop complex, 30 to 65 percent slopes, about 7 miles northwest of Waterville; about 2,640 feet east and 2,000 feet north of the southwest corner of sec. 7, T. 26 N., R. 22 E. (lat. 47°45'45" N., long. 120°07'30" W.)

A—0 to 5 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent granitic gravel; neutral; gradual wavy boundary.

AB—5 to 10 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash and 5 percent granitic gravel; slightly alkaline; gradual wavy boundary.

Bw1—10 to 27 inches; yellowish brown (10YR 5/4) ashy fine sandy loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash and 5 percent granitic gravel; slightly alkaline; clear wavy boundary.

Bw2—27 to 35 inches; yellowish brown (10YR 5/4) extremely cobbly ashy fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash, 35 percent granitic cobbles, and 30 percent granitic gravel; slightly alkaline; clear wavy boundary.

2R—35 inches; granite.

The mollic epipedon is 9 to 13 inches thick. Depth to bedrock and thickness of the volcanic ash influence are 20 to 40 inches. The upper part of the particle-size control section has 5 to 10 percent rock fragments, and the lower part has 50 to 65 percent rock fragments.

The A and AB horizons have chroma of 2 or 3 dry or moist. They are neutral or slightly alkaline.

The Bw1 horizon has value of 5 or 6 dry and chroma of 3 or 4 dry and 2, 3, or 4 moist. It is neutral or slightly alkaline.

The Bw2 horizon has value of 5 or 6 dry and chroma of 3 or 4 dry and 2, 3, or 4 moist. It is very cobbly or extremely cobbly ashy fine sandy loam.

Brazlan Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Glaciated plateaus
Parent material: Loess mixed with volcanic ash mixed with glacial till over a duripan over basalt
Slope range: 0 to 50 percent
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Durixerolls

Typical pedon of Brazlan cobbly ashy fine sandy loam (fig. 18) in an area of Siweeka-Brazlan-Brazlan extremely bouldery complex, 3 to 15 percent slopes, about 4 miles northwest of Elbow Lake; about 2,800 feet east and 1,200 feet north of the southwest corner of sec. 31, T. 30 N., R. 29 E. (lat. 48°03'07" N., long. 119°13'20" W.)

Ap—0 to 5 inches; grayish brown (10YR 5/2) cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; common very fine tubular pores; 3 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 10 percent cobbles; 1 percent cobbles on surface; neutral; clear wavy boundary.

AB—5 to 13 inches; brown (10YR 5/3) very cobbly ashy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine tubular and interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 20 percent cobbles; neutral; abrupt wavy boundary.

2Bw—13 to 20 inches; gray (10YR 5/1) very gravelly sandy loam, very dark gray (10YR 3/1) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common fine interstitial pores; 35 percent gravel and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Bqm—20 to 25 inches; dark gray (10YR 4/1) weakly cemented duripan that crushes to gravelly coarse sandy loam, very dark gray (10YR 3/1) moist; massive; very hard, very firm, nonsticky and nonplastic; few fine tubular pores; many distinct silica coatings that are less than 1 millimeter thick and grayish brown (2.5Y 5/2) when dry covering the duripan surface; 20 percent gravel and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

3R—25 inches; basalt.



Figure 18.—Profile of a Brazlan cobbly ashy fine sandy loam. The duripan is at a depth of about 20 inches. Bedrock is at a depth of about 25 inches. Numerals on the tape are in feet.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 14 inches. The particle-size control section has 35 to 55 percent rock fragments. Depth to the duripan is 20 to 36 inches. Depth to bedrock is 24 to 40 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 3 dry or moist. It is cobbly ashy fine sandy loam, very cobbly ashy fine sandy loam, or very stony ashy fine sandy loam.

The AB horizon has hue of 10YR or 2.5Y and chroma of 2 to 4 dry and 2 or 3 moist. It is very cobbly ashy loam, very gravelly ashy sandy loam, or very gravelly ashy loam. It is neutral or slightly alkaline.

The 2Bw horizon has hue of 2.5Y, 5Y, or 10YR. It has value of 4 to 6 dry and 3 or 4 moist and chroma of 1 to 3 dry or moist. It is very gravelly sandy loam or very gravelly loam. It is slightly alkaline or moderately alkaline.

The 2Bqm horizon has hue of 7.5YR to 2.5Y and value of 3 or 4 dry or moist. It is weakly cemented or moderately cemented with silica or with carbonates and silica. It crushes to gravelly, very gravelly, cobbly, or very cobbly fine sandy loam, sandy loam, coarse sandy loam, or loam. It has 10 to 35 percent gravel, 0 to 20 percent cobbles, and 0 to 10 percent stones. It is slightly alkaline or moderately alkaline.

Broadax Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess
Slope range: 0 to 30 percent
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calcic Argixerolls

Typical pedon of Broadax silt loam, 0 to 8 percent slopes, about 7 miles southwest of the southwest end of Banks Lake; about 2,400 feet east and 1,200 feet north of the southwest corner of sec. 7, T. 24 N., R. 27 E. (lat. 47°35'20" N., long. 119°28'50" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine interstitial pores; slightly acid; clear wavy boundary.

A—8 to 16 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine and fine interstitial pores; neutral; abrupt wavy boundary.

Bt1—16 to 26 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; common very fine roots; common very fine and fine interstitial pores; many distinct clay films on faces of peds; neutral; clear wavy boundary.

Bt2—26 to 42 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; common very fine roots; common fine and very fine interstitial pores; many distinct clay films on faces of peds; slightly alkaline; abrupt wavy boundary.

2Btk1—42 to 54 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine and fine interstitial and tubular pores; common distinct clay films on faces of peds; common fine filaments of secondary carbonates throughout matrix; strongly effervescent; moderately alkaline; clear wavy boundary.

2Btk2—54 to 60 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine interstitial pores; many distinct clay films on faces of peds; many filaments of secondary carbonates throughout matrix; violently effervescent; moderately alkaline.

The mollic epipedon, where present, is 12 to 20 inches thick. The particle-size control section has 18 to 30 percent clay and less than 15 percent fine sand or coarser. Depth to secondary carbonates is 25 to 44 inches. Where present, depth to the duripan is 40 to 60 inches. Where present, depth to bedrock is 40 to 60 inches or more.

The A horizon has hue of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 4 dry and 2 or 3 moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 to 4 dry and 3 or 4 moist.

The 2Btk horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam or silty clay loam.

Where present, the duripan is weakly cemented or moderately cemented.

The Broadax soils in this survey area are a taxadjunct to the Broadax series. The soils in the Broadax series are fine-silty. The Broadax soils in this survey area are coarse-silty. The Broadax soils in detailed soil map units 66, 67, 70, 233, 234, 235, 236, and 237 are not thick enough and do not have enough organic matter for a mollic epipedon. These soils are classified as Mollic Haploxeralfs.

Burbank Series

Soil depth: Very deep
Drainage class: Excessively drained
Landform: Terraces
Parent material: Eolian sand over mixed alluvium and glacial outwash
Slope range: 0 to 25 percent
Elevation: 650 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Torriorthents

Typical pedon of Burbank loamy fine sand, 0 to 8 percent slopes, about 6 miles north of East Wenatchee; about 1,320 feet east and 900 feet south of the northwest corner of sec. 11, T. 23 N., R. 20 E. (lat. 47°30'25" N., long. 120°17'46" W.)

Ap—0 to 6 inches; yellowish brown (10YR 5/4) loamy fine sand, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine interstitial pores; 10 percent gravel; slightly alkaline; gradual smooth boundary.

Bw—6 to 20 inches; yellowish brown (10YR 5/4) gravelly loamy sand, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; 20 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.

Bk—20 to 60 inches; multicolored very cobbly coarse sand; single grain; loose, nonsticky and nonplastic; 25 percent gravel and 30 percent cobbles; few distinct coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on underside of rock fragments in upper part of horizon; strongly effervescent; slightly alkaline.

The profile is slightly alkaline or moderately alkaline. Depth to the Bk horizon is 20 to 25 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 to 4 dry or moist.

The Bw horizon has value of 4 to 6 dry and 2 to 4 moist and chroma of 2 to 4 dry or moist. The fine-earth fraction is loamy sand or loamy fine sand with 5 to 35 percent rock fragments.

The Bk horizon is multicolored. It has value of 3 to 5 dry and 2 to 4 moist and chroma of 2 to 4 dry or moist. The fine-earth fraction is sand or coarse sand with 45 to 80 percent rock fragments. The horizon has 1 to 8 percent calcium carbonate.

Burch Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Mixed alluvium
Slope range: 0 to 15 percent
Elevation: 750 to 1,200 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 145 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Burch loam, 3 to 8 percent slopes, about 1 mile north of Rock Island; about 1,600 feet north and 850 feet west of the southeast corner of sec. 13, T. 22 N., R. 21 E. (lat. 47°23'50" N., long. 120°08'45" W.)

Ap—0 to 10 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine tubular pores; neutral; clear smooth boundary.
Bw1—10 to 20 inches; yellowish brown (10YR 5/4) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine tubular and interstitial pores; neutral; gradual smooth boundary.
Bw2—20 to 30 inches; light brownish gray (10YR 6/2) loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium tubular and interstitial pores; slightly alkaline; gradual wavy boundary.
C—30 to 60 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium tubular and interstitial pores; slightly alkaline.

The mollic epipedon is 10 to 19 inches thick. It has 0 to 5 percent rock fragments.

The Ap horizon has value of 2 or 3 moist and 4 or 5 dry and chroma of 1 to 3 dry or moist. It is loam or silt loam.

The Bw horizon has value of 3 or 4 moist and 5 or 6 dry and chroma of 2 to 4 dry or moist. It is loam, silt loam, or very fine sandy loam and may be stratified. It is neutral or slightly alkaline.

The C horizon has value of 3 or 4 moist and 5 or 6 dry and chroma of 3 or 4 dry or moist. It is loam, very fine sandy loam, or silt loam and may be stratified. It is neutral or slightly alkaline.

Cachebutte Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Kames, terraces, and drainageways and depressions of glaciated plateaus
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Elevation: 1,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitrandic Haploxerolls

Typical pedon of Cachebutte ashy sandy loam in an area of Alecanyon-Cachebutte complex, 0 to 8 percent slopes, about 4 miles southeast of Haynes Lake; about 600 feet east and 700 feet north of the southwest corner of sec. 14, T. 25 N., R. 27 E. (lat. 47°40'25" N., long. 119°24'09" W.)

Ap—0 to 6 inches; brown (10YR 5/3) ashy sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few medium tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

A—6 to 22 inches; brown (10YR 5/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium tubular pores; 3 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual wavy boundary.

Bw—22 to 28 inches; brown (10YR 5/3) gravelly ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few medium tubular pores and few very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 1 percent cobbles; neutral; abrupt wavy boundary.

2Bk1—28 to 34 inches; brown (10YR 5/3) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure and single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; many distinct coatings of secondary carbonates on underside of rock fragments; 40 percent gravel and 15 percent cobbles; violently effervescent; slightly alkaline; abrupt smooth boundary.

2Bk2—34 to 60 inches; multicolored extremely cobbly coarse sand, very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; many distinct coatings of secondary carbonates on underside of rock fragments; 40 percent gravel and 40 percent cobbles; strongly effervescent; slightly alkaline.

The mollic epipedon is 20 to 28 inches thick. Depth to sandy-skeletal material (2Bk2 horizon) is 25 to 35 inches. Depth to secondary carbonates is 24 to 40 inches. The lower part of the particle-size control section has 35 to 60 percent rock fragments.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist.

The A horizon has value of 4 or 5 dry and 2 or 3 moist. It is ashy loam or ashy sandy loam. It is slightly acid or neutral.

The Bw horizon has chroma of 2 or 3 dry or moist. It is ashy sandy loam or gravelly ashy sandy loam.

The 2Bk1 horizon has chroma of 2 or 3 dry. It is very gravelly fine sandy loam or very cobbly sandy loam. It is neutral or slightly alkaline.

The 2Bk2 horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 or 2 dry or moist. It is very gravelly sand, very gravelly loamy sand, or extremely cobbly coarse sand. It is neutral or slightly alkaline.

Camaspatch Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 65 percent

Elevation: 2,400 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Clayey-skeletal, smectitic, mesic Lithic Argixerolls

Typical pedon of Camaspatch very cobbly loam in an area of Argabak-Camaspatch-Badge complex, 30 to 65 percent slopes, about 6 miles west of Waterville; about 600 feet west and 750 feet south of the northeast corner of sec. 22, T. 25 N., R. 21 E. (lat. 47°39'15" N., long. 120°10'39" W.)

A—0 to 7 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; common very fine, fine, and medium roots; common fine interstitial pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.
Bt1—7 to 10 inches; brown (7.5YR 4/2) very cobbly clay loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine interstitial pores; many distinct clay films that are brown (7.5YR 4/4) when dry on faces of peds and rock fragments; 25 percent gravel, 25 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.
Bt2—10 to 18 inches; brown (7.5YR 4/2) very gravelly clay, brown (7.5YR 4/4) moist; strong medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common fine and very fine roots; common fine and medium pores; common distinct slickensides on faces of peds; many distinct clay films that are dark yellowish brown (10YR 3/4) when dry on faces of peds and few prominent and common distinct clay films that are dark yellowish brown (10YR 3/4) when dry and few prominent clay films that are brownish yellow (10YR 6/8) when dry on rock fragments; 30 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.
2R—18 inches; basalt.

The mollic epipedon is 7 to 12 inches thick. The particle-size control section averages 35 to 50 percent clay and 35 to 75 percent rock fragments. Depth to bedrock is 12 to 20 inches.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry, and chroma of 2 to 4 dry and 2 or 3 moist.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 2, 3, or 4 dry or moist. It is very gravelly, extremely gravelly, or very cobbly clay loam, clay, or silty clay loam.

Cashmere Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Glaciofluvial deposits
Slope range: 0 to 60 percent
Elevation: 700 to 2,000 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Cashmere fine sandy loam, 3 to 8 percent slopes, about 3 miles southwest of East Wenatchee; about 100 feet east of the northwest corner of sec. 17, T. 22 N. R. 21 E. (lat. 47°24'02" N., long. 120°14'15" W.)

Ap—0 to 4 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine tubular pores; slightly alkaline; clear smooth boundary.

A—4 to 11 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and medium interstitial pores; slightly alkaline; clear wavy boundary.

Bw—11 to 24 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak fine prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine tubular and interstitial pores; slightly alkaline; gradual wavy boundary.

C—24 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine and fine tubular and interstitial pores; 2 percent gravel; slightly alkaline.

The mollic epipedon is 8 to 14 inches thick. The solum is 15 to 38 inches thick. The particle-size control section has 0 to 10 percent rock fragments. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It has 0 to 5 percent gravel. It is slightly acid to slightly alkaline.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is fine sandy loam, sandy loam, coarse sandy loam, or very fine sandy loam. It has 0 to 10 percent gravel and 0 to 2 percent cobbles. It is neutral or slightly alkaline.

The C horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is fine sandy loam, very fine sandy loam, sandy loam, or coarse sandy loam. Below a depth of 40 inches in some pedons, it is loamy fine sand, loamy sand, or loamy coarse sand and may have strata of silt or sand 0.25 to 0.5 inch thick. The horizon has 0 to 10 percent gravel and 0 to 2 percent cobbles. It is massive or single grain. It is neutral to moderately alkaline.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Cashmont Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Fans on terraces
Parent material: Gravelly alluvium
Slope range: 0 to 15 percent
Elevation: 750 to 1,500 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Cashmont sandy loam, 3 to 8 percent slopes, along the south side of Almeda Flats; about 1,600 feet south and 50 feet east of the northwest corner of sec. 16, T. 30 N., R. 29 E. (lat. 48°06'06" N., long. 119°11'23" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; 5 percent gravel; neutral; clear wavy boundary.
Bw—10 to 24 inches; light yellowish brown (10YR 6/4) gravelly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 20 percent gravel; slightly alkaline; gradual wavy boundary.
C—24 to 60 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 5/3) moist, single grain; loose, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 25 percent gravel; slightly alkaline.

The mollic epipedon is 8 to 15 inches thick, and the solum is 16 to 38 inches thick. The particle-size control section has 15 to 35 percent rock fragments.

The Ap horizon has value of 4 or 5 dry and chroma of 2 or 3 dry and 1 to 3 moist. It is slightly acid to slightly alkaline. It is sandy loam or gravelly sandy loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is gravelly fine sandy loam, gravelly sandy loam, or gravelly coarse sandy loam. It is neutral or slightly alkaline.

The C horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 3 to 5 moist. It is gravelly fine sandy loam, very gravelly sandy loam, or gravelly coarse sandy loam. Below a depth of 35 inches in some pedons, it is very gravelly sandy loam, gravelly sandy loam, or gravelly fine sandy loam and may be layered with very gravelly loamy sand or gravelly sand. The horizon is neutral or slightly alkaline.

Chelan Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: High terraces
Parent material: Loess and volcanic ash over dense glacial till, glacial outwash, or granite
Slope range: 0 to 30 percent
Elevation: 1,000 to 2,000 feet
Mean annual precipitation: 9 to 11 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 145 to 190 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Haploxerolls

Typical pedon of Chelan ashy fine sandy loam, 8 to 15 percent slopes, about 2 miles northeast of Beebe; about 2,600 feet east and 1,600 feet north of the southwest corner of sec. 15, T. 27 N., R. 23 E. (lat. 47°50'05" N., long. 119°50'30" W.)

A1—0 to 4 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; clear smooth boundary.
A2—4 to 10 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; gradual wavy boundary.

Bw1—10 to 20 inches; brown (10YR 5/3) ashy fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; gradual wavy boundary.

Bw2—20 to 30 inches; yellowish brown (10YR 5/4) ashy fine sandy loam, brown (10YR 4/3) moist; soft, friable, nonsticky and nonplastic; common very fine roots; few very fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; gradual smooth boundary.

Bw3—30 to 43 inches; yellowish brown (10YR 5/4) ashy fine sandy loam, dark yellowish brown (10YR 4/4) moist; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 10 percent pumice 2 to 5 millimeters in diameter; 5 percent stones and 2 percent gravel; moderately alkaline; abrupt wavy boundary.

2Bkqm—43 to 57 inches; light gray (10YR 7/1) weakly cemented duripan that crushes to very cobbly sandy loam, grayish brown (10YR 5/2) moist; massive; hard, very firm, nonsticky and nonplastic; few very fine tubular pores; common fine filaments of secondary carbonates throughout matrix; 20 percent cobbles, 10 percent gravel, and 5 percent stones; strongly effervescent; strongly alkaline; clear wavy boundary.

2Cdk—57 to 60 inches; light gray (10YR 7/1) dense till that crushes to cobbly fine sandy loam, gray (10YR 6/1) moist; massive; hard, firm, nonsticky and nonplastic; common very fine and fine vesicular and tubular pores; common fine filaments of secondary carbonates throughout matrix; 10 percent gravel, 15 percent cobbles, and 5 percent stones; strongly effervescent; slightly alkaline.

The mollic epipedon is 9 to 13 inches thick. The volcanic ash influence is 40 to 60 inches thick. Where present, the duripan is at a depth of 40 to 60 inches and is underlain by dense glacial till. Where present, depth to bedrock is 40 to 60 inches. Where present, depth to extremely cobbly sand or extremely gravelly sand is 40 to 60 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist. It is neutral to moderately alkaline.

The Bw horizon has hue of 10YR to 2.5Y, value of 5 to 7 dry and 3 or 4 moist, and chroma of 2 to 4 dry or moist. It is ashy fine sandy loam, ashy sandy loam, or ashy very fine sandy loam. It is neutral to moderately alkaline.

The 2Bkqm horizon, where present, has value of 5 to 7 dry and 5 or 6 moist and chroma of 1 to 3 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. It crushes to fine sandy loam or sandy loam and has 25 to 35 percent rock fragments. It is slightly alkaline to strongly alkaline.

The 2Cdk horizon, where present, has value of 5 or 6 moist and chroma of 1 or 2 dry or moist. It crushes to fine sandy loam or sandy loam and has 30 to 40 percent rock fragments. It is slightly alkaline or moderately alkaline.

Cheviot Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 8 to 65 percent

Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Cheviot very cobbly loam in an area of Cheviot-Ralls-Grinrod complex, 15 to 30 percent slopes, about 3 miles north of Orondo; about 2,500 feet north and 1,000 east of the southwest corner of sec. 24, T. 25 N., R. 21 E. (lat. 47°38'45" N., long. 120°08'10" W.)

A—0 to 10 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common fine and medium interstitial pores; 10 percent gravel, 25 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.
Bw1—10 to 17 inches; brown (10YR 5/3) very cobbly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 20 percent gravel, 30 percent cobbles, and 5 percent stones; slightly alkaline; gradual wavy boundary.
Bw2—17 to 32 inches; yellowish brown (10YR 5/4) very cobbly silt loam, dark brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, firm, nonsticky and slightly plastic; common very fine roots; common very fine interstitial pores; 15 percent gravel, 35 percent cobbles, and 5 percent stones; slightly alkaline; gradual wavy boundary.
Bw3—32 to 60 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; common very fine and fine tubular pores; 20 percent gravel, 50 percent cobbles, and 5 percent stones; slightly alkaline.

The mollic epipedon is 10 to 14 inches thick. The particle-size control section has 35 to 75 percent rock fragments.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has chroma of 3 or 4 dry or moist. It is very cobbly or extremely cobbly loam or silt loam. It is neutral or slightly alkaline.

Conconully Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Glaciated plateaus
Parent material: Loess mixed with volcanic ash over glacial till or glacial till over granite
Slope range: 0 to 65 percent
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Vitrandic Haploxerolls

Typical pedon of Conconully ashy sandy loam, bedrock substratum, in an area of Conconully complex, 0 to 8 percent slopes, about 12 miles northwest of Coulee Dam;

about 1,400 feet north and 150 feet east of the southwest corner of sec. 30, T. 30 N., R. 30 E. (lat. 48°04'03" N., long. 119°06'11" W.)

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) ashy sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine and medium roots; many very fine and fine interstitial pores; 10 percent gravel; neutral; clear smooth boundary.

A—6 to 12 inches; brown (10YR 5/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine and fine interstitial pores; 10 percent gravel; neutral; clear wavy boundary.

2Bw1—12 to 25 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine vesicular pores; 10 percent gravel; neutral; gradual wavy boundary.

2Bw2—25 to 35 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common fine vesicular pores; 20 percent gravel; neutral; gradual wavy boundary.

2Cd1—35 to 44 inches; light brownish gray (10YR 6/2) dense glacial till that crushes to gravelly sandy loam, dark brown (10YR 3/3) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 15 percent gravel; neutral; abrupt smooth boundary.

2Cd2—44 to 50 inches; gray (2.5Y 6/1) dense glacial till that crushes to gravelly loamy sand, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, very firm, nonsticky and nonplastic; few very fine and fine tubular pores; 20 percent gravel; neutral; abrupt smooth boundary.

3Cr—50 inches; weathered granite.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 14 inches. The rock fragment content of individual subhorizons is 5 to 50 percent, but the weighted average in the particle-size control section is 15 to 35 percent. Depth to dense glacial till is 26 to 40 inches. Where present, depth to bedrock is 45 to 60 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is sandy loam or gravelly sandy loam with 5 to 35 percent rock fragments.

The 2Cd horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 6 moist, and chroma of 1 to 4 dry or moist. It is gravelly sandy loam, gravelly coarse sandy loam, or gravelly loamy sand. It is neutral or slightly alkaline.

Corbaley Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Drainageways of nonglaciated plateaus
Parent material: Loess and volcanic ash mixed with colluvium derived from basalt
Slope range: 0 to 30 percent
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy-skeletal, glassy, mesic Lithic Argixerolls

Typical pedon of Corbaley cobbly ashy fine sandy loam in an area of Corbaley-Kester complex, 0 to 5 percent slopes, about 1 mile south and 2 miles east of Withrow; about 600 feet south and 275 feet east of the northwest corner of sec. 1, T. 25 N., R. 24 E. (lat. 47°41'53" N., long. 119°46'09" W.)

Ap—0 to 3 inches; grayish brown (10YR 5/2) cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; common fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel and 20 percent cobbles; neutral; clear smooth boundary.

A1—3 to 5 inches; brown (10YR 5/3) cobbly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 15 percent cobbles; neutral; clear wavy boundary.

A2—5 to 9 inches; brown (10YR 5/3) gravelly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; few fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.

Bt—9 to 16 inches; yellowish brown (10YR 5/4) very gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; few fine roots; few fine interstitial and tubular pores; few faint clay films on faces of peds and few faint clay films that are brown (10YR 5/3) when dry on rock fragments; 15 percent coarse and very coarse sand-sized volcanic ash; 40 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.

2R—16 inches; basalt.

The mollic epipedon is 7 to 17 inches thick. Thickness of the volcanic ash influence and depth to bedrock are 10 to 20 inches. The particle-size control section has 10 to 16 percent clay and 35 to 60 percent rock fragments.

The Ap horizon has chroma of 2 or 3 dry or moist.

The A horizon has chroma of 2 or 3 moist. It is cobbly, gravelly, very cobbly, or very gravelly ashy fine sandy loam.

The Bt horizon has chroma 4 or 5 dry and 3 or 4 moist. It is neutral or slightly alkaline.

Cordy Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Mountains
Parent material: Loess and volcanic ash over older loess
Slope range: 3 to 60 percent
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 18 to 24 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 75 to 120 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, frigid Vitrandic Haploxerolls

Typical pedon of Cordy ashy loam in an area of Cordy-Stemilt complex, 3 to 30 percent slopes, about 5 miles west of Douglas; about 1,800 feet south

of the northeast corner of sec. 1, T. 24 N., R. 21 E. (lat. 47°36'20" N., long. 120°08'05" W.)

Oi—0.5 inch to 0; slightly decomposed needles and twigs.
A1—0 to 4 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.
A2—4 to 16 inches; brown (10YR 5/3) ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual wavy boundary.
Bw—16 to 21 inches; yellowish brown (10YR 5/4) ashy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.
2Bw1—21 to 36 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; massive; hard, firm, nonsticky and slightly plastic; common very fine roots; few very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.
2Bw2—36 to 60 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral.

The mollic epipedon is 12 to 18 inches thick. The volcanic ash influence is 20 to 30 inches thick.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is slightly acid or neutral.

The Bw horizon has value of 4 or 5 dry and 3 or 4 moist. It is slightly acid or neutral.

The 2Bw horizon has value of 4 or 5 dry or moist and chroma of 3 or 4 dry or moist. It is silt loam or loam.

Couleedam Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Colluvium and residuum derived from granite
Slope range: 3 to 70 percent
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls

Typical pedon of Couleedam very stony sandy loam (fig. 19) in an area of Rock outcrop-Couleedam-Roosevelt complex, 30 to 70 percent slopes, about 0.5 mile south of Chief Joseph Dam; about 150 feet south and 150 feet east of the northwest corner of sec. 25, T. 29 N., R. 25 E. (lat. 47°59'21" N., long. 119°38'39" W.)

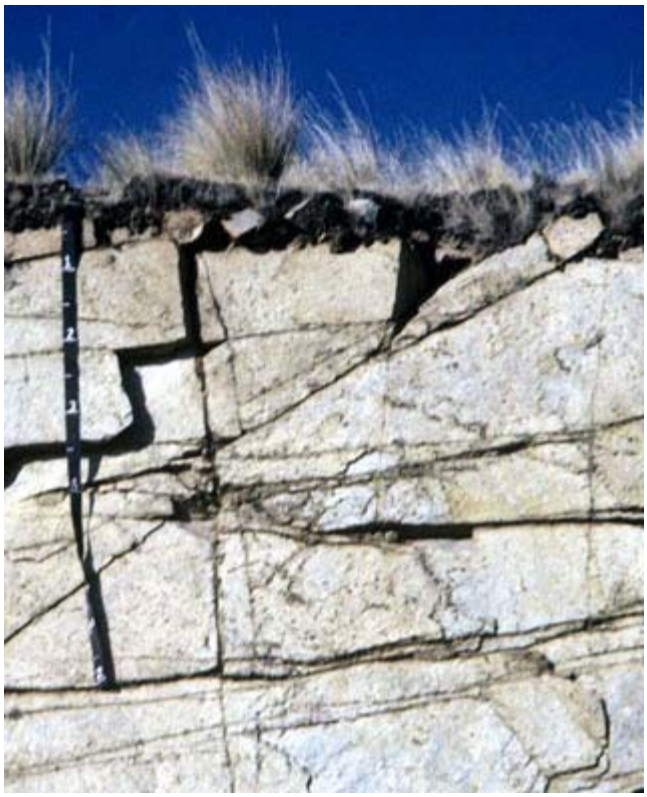


Figure 19.—Profile of a Couleedam very stony sandy loam. Granitic bedrock is at a depth of about 10 inches. Numerals on the tape are in feet.

A1—0 to 4 inches; grayish brown (10YR 5/2) very stony sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 10 percent gravel and 15 percent cobbles; 10 percent stones on surface; neutral; gradual wavy boundary.

A2—4 to 9 inches; brown (10YR 5/3) very cobbly sandy loam, brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine and medium interstitial pores; 15 percent gravel and 25 percent cobbles; neutral; gradual wavy boundary.

Bw—9 to 16 inches; pale brown (10YR 6/3) very cobbly sandy loam, brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine and medium interstitial pores; 15 percent gravel and 25 percent cobbles; neutral; abrupt smooth boundary.

R—16 inches; granite.

The mollic epipedon is 7 to 11 inches thick. Depth to bedrock is 10 to 20 inches. The particle-size control section averages 35 to 60 percent rock fragments. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is very gravelly or very cobbly sandy loam.

Deercut Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 15 percent
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Vitritorrandic Durixerolls

Typical pedon of Deercut ashy fine sandy loam in an area of Deercut-Aarup-Whiteye complex, 0 to 3 percent slopes, about 7 miles northwest of Douglas; about 1,320 feet north and 1,000 feet west of the southeast corner of sec. 1, T. 25 N., R. 23 E. (lat. 47°41'54" N., long. 119°53'54" W.)

Ap—0 to 5 inches; brown (10YR 4/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; few very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.
A—5 to 10 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.
2Bt1—10 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine interstitial pores; few faint clay films on faces of peds; neutral; clear wavy boundary.
2Bt2—17 to 24 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine and medium interstitial pores; few distinct clay films on faces of peds; neutral; abrupt wavy boundary.
3Bkqm1—24 to 28 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous very pale brown (10YR 8/3) coatings of secondary carbonates and silica on surface of duripan; violently effervescent; clear wavy boundary.
3Bkqm2—28 to 33 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; violently effervescent; abrupt wavy boundary.
4R—33 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence and depth to the argillic horizon are 10 to 17 inches. Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The Ap horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The A horizon has chroma of 3 or 4 dry and 2 or 3 moist. It is ashy fine sandy loam or ashy sandy loam. It is neutral or slightly alkaline.

The 2Bt1 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry. It is neutral or slightly alkaline.

The 2Bt2 horizon has value of 5 to 7 dry and 4 to 6 moist and chroma of 3 or 4 dry. It is neutral or slightly alkaline.

The 3Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

DelRio Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces, kames, and depressions and channels of glaciated plateaus and terraces
Parent material: Loess and volcanic ash over sandy glacial outwash or loess over sandy glaciolacustrine deposits or sandy glacial outwash
Slope range: 0 to 65 percent
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitrixerandic Haplocambids

Typical pedon of DelRio ashy fine sandy loam, 0 to 8 percent slopes, about 1 mile southeast of Mansfield; about 2,200 feet west and 500 feet south of the northeast corner of sec. 36, T. 27 N., R. 25 E. (lat. 47°47'55" N., long. 119°37'42" W.)

Ap—0 to 6 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine vesicular pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly acid; clear smooth boundary.

AB—6 to 13 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine vesicular pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

BA—13 to 20 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial and tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

Bw1—20 to 33 inches; brown (10YR 5/3) ashy fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Bw2—33 to 45 inches; brown (10YR 5/3) ashy fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial and vesicular pores; 2 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

2Bk—45 to 60 inches; light brownish gray (2.5Y 6/2) loamy fine sand, dark grayish brown (2.5Y 4/2) moist; massive; loose, very friable, nonsticky and nonplastic; few very fine roots; common fine and medium tubular pores; few fine filaments of

secondary carbonates in pores and disseminated carbonates throughout matrix; slightly effervescent; slightly alkaline.

Where present, the volcanic ash influence is 40 to 60 inches. Depth to secondary carbonates is more than 44 inches. Depth to strongly contrasting textural stratification is 44 to 60 inches or more.

The Ap horizon has chroma of 2 or 3 dry. It is ashy fine sandy loam or very fine sandy loam.

The AB horizon has chroma of 2 or 3 dry. It is ashy fine sandy loam or sandy loam.

The BA horizon has chroma of 3 or 4 dry and 2 or 3 moist. It is ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam, fine sandy loam, sandy loam, or very fine sandy loam.

The Bw1 horizon has value of 3 or 4 dry or moist and chroma of 3 or 4 dry. It is ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam, fine sandy loam, sandy loam, or very fine sandy loam. It is neutral or slightly alkaline.

The Bw2 horizon has hue of 2.5Y or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 to 4 dry and 2 or 3 moist. It is ashy sandy loam, ashy fine sandy loam, ashy very fine sandy loam, sandy loam, fine sandy loam, or very fine sandy loam.

The 2Bk horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 1 to 3 dry or moist. It is loamy fine sand, sandy loam, or loamy sand. It is neutral or slightly alkaline.

The DelRio soils in detailed soil map units 158, 161, 275, and 278 are a taxadjunct to the DelRio series. The soils in these units have less volcanic ash influence and are classified as coarse-loamy, mixed, superactive, mesic Xeric Haplocambids.

Dezellem Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Till plains and moraines of glaciated plateaus
Parent material: Loess, volcanic ash, and glacial till over glacial till
Slope range: 0 to 70 percent
Elevation: 1,200 to 3,200 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 170 days

Taxonomic classification: Ashy over loamy-skeletal, glassy over mixed, superactive, mesic Vitrandic Haploxerolls

Typical pedon of Dezellem very stony ashy fine sandy loam in an area of Dezellem-Brazlan complex, 15 to 30 percent slopes, about 6 miles southeast of Sims Corner; about 600 feet west of the northeast corner of sec. 36, T. 27 N., R. 28 E. (lat. 47°48'02" N., long. 119°14'07" W.)

Ap—0 to 4 inches; gray (10YR 5/1) very stony ashy fine sandy loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; common very fine tubular pores and few very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel, 10 percent cobbles, and 10 percent stones; neutral; gradual wavy boundary.

A—4 to 18 inches; grayish brown (10YR 5/2) gravelly ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak moderate subangular blocky structure;

slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores and common very fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 10 percent cobbles; slightly alkaline; gradual wavy boundary.

2Bw1—18 to 24 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak moderate subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; common very fine tubular pores; 2 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 20 percent cobbles; slightly alkaline; gradual wavy boundary.

2Bw2—24 to 36 inches; grayish brown (10YR 5/2) cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; few very fine roots; common very fine interstitial and tubular pores; 15 percent gravel and 15 percent cobbles; slightly alkaline; gradual wavy boundary.

2Bk—36 to 60 inches; grayish brown (10YR 5/2) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; few very fine interstitial and tubular pores; common distinct coatings of secondary carbonates on underside of rock fragments; 40 percent gravel, 20 percent cobbles, and 5 percent stones; moderately alkaline.

Thickness of the mollic epipedon and volcanic ash influence is 14 to 20 inches. The lower part of particle-size control section has 35 to 45 percent rock fragments.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 or 2 moist.

The A horizon has hue of 10YR to 2.5Y dry, value of 2 or 3 moist, and chroma of 1 or 2 moist. It is gravelly ashy fine sandy loam or very stony ashy loam. It is neutral or slightly alkaline.

The 2Bw1 horizon has hue of 5Y to 10YR moist, value of 1 or 2 dry and 2 or 3 moist, and chroma of 1 or 2 dry or moist. It is very gravelly sandy loam, very cobbly loam, or very gravelly fine sandy loam. It is slightly alkaline or moderately alkaline.

The 2Bw2 horizon has hue of 5Y to 10YR dry or moist, value of 2 or 3 moist, and chroma of 1 or 2 dry or moist. It is very cobbly fine sandy loam, cobbly sandy loam, or very gravelly sandy loam. It is slightly alkaline or moderately alkaline.

The 2Bk horizon has hue of 5Y to 10YR dry or moist, value of 2 or 3 moist, and chroma of 1 or 2 dry or moist. It is extremely gravelly sandy loam or extremely cobbly sandy loam. It is slightly alkaline or moderately alkaline. It has 1 to 8 percent calcium carbonate.

Dinkels Series

Soil depth: Deep
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Loess and volcanic ash over colluvium derived from granite
Slope range: 35 to 70 percent
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 105 to 155 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Haploxerolls

Typical pedon of Dinkels gravelly ashy loam in an area of Dinkels-Rock outcrop complex, 35 to 70 percent slopes, about 1 mile east of Orondo; about 700 feet

west and 200 feet south of the northeast corner of sec. 33, T. 25 N., R. 21 E. (lat. 47°37'35" N., long. 120°12'20" W.)

A1—0 to 6 inches; grayish brown (10YR 5/2) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 15 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

A2—6 to 18 inches; brown (10YR 5/3) gravelly ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 15 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

Bw1—18 to 28 inches; pale brown (10YR 6/3) gravelly ashy fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure, soft, very friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 20 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

Bw2—28 to 41 inches; pale brown (10YR 6/3) gravelly ashy fine sandy loam, brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; few fine and medium interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 20 percent gravel and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.

2R—41 inches; gneiss.

The mollic epipedon is 14 to 20 inches thick. Thickness of the volcanic ash influence and depth to bedrock are 40 to 60 inches. The profile is neutral or slightly alkaline.

The A horizon has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 2, 3, or 4 dry or moist. It is gravelly ashy sandy loam, gravelly ashy fine sandy loam, or gravelly ashy coarse sandy loam.

Dougville Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess or a duripan
Slope range: 0 to 65 percent
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees
Frost-free period: 110 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Dougville ashy fine sandy loam in an area of Dougville-Farmer complex, 8 to 15 percent slopes, about 3 miles east of Chelan Falls; about 2,130 feet south and 2,500 west of the northeast corner of sec. 26, T. 27 N., R. 23 E. (lat. 47°48'30" N., long. 119°54'30" W.)

Ap—0 to 8 inches; gray (10YR 5/1) ashy fine sandy loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; few fine vesicular pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear smooth boundary.

A—8 to 19 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; gradual wavy boundary.

AB—19 to 26 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common fine roots; few fine vesicular pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; gradual wavy boundary.

Bw—26 to 39 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; few fine vesicular pores; 20 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; gradual wavy boundary.

2Bt—39 to 57 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; hard, firm, nonsticky and slightly plastic; few very fine roots; common fine tubular pores and few fine vesicular pores; few faint clay films on faces of peds and lining pores; 10 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; gradual wavy boundary.

2Bkqm—57 to 60 inches; light yellowish brown (10YR 6/4) weakly cemented duripan that crushes to gravelly silt loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine tubular pores; few fine filaments of secondary carbonates in pores and disseminated carbonates throughout matrix; slightly effervescent; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel; moderately alkaline.

The mollic epipedon is 20 to 30 inches thick. Depth to the 2Bt horizon and volcanic ash influence is 20 to 39 inches. The particle-size control section has 8 to 18 percent clay and less than 15 percent fine sand or coarser. Where present, depth to the duripan is 40 to 60 inches. In some areas stratified sandy loam and silty clay loam are at a depth of 40 to 60 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 or 2 dry or moist.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is ashy fine sandy loam or ashy sandy loam.

The AB horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 3 or 4 moist. It is ashy fine sandy loam or ashy sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is ashy fine sandy loam or ashy sandy loam. It is neutral or slightly alkaline.

The 2Bt horizon has hue of 10YR or 2.5Y, value of 5 to 8 dry and 4 to 6 moist, and chroma of 2, 3, or 4 dry or moist. Some pedons have as much as 20 percent gravel in the subhorizons. The 2Bt horizon is slightly alkaline or moderately alkaline.

The 2Bkqm horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 8 dry and 4 to 6 moist, and chroma of 2 to 4 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. It crushes to sandy loam, gravelly sandy loam, or gravelly silt loam. It is slightly alkaline or moderately alkaline.

Drysel Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Fans on nonglaciated plateaus
Parent material: Loess over gravelly colluvium over a duripan over basalt
Slope range: 5 to 15 percent
Elevation: 1,600 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 135 to 195 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Xeric Argidurids

Typical pedon of Drysel silt loam, 5 to 15 percent slopes, about 6 miles northeast of Palisades; about 300 feet west of the northeast corner of sec. 21, T. 23 N., R. 24 E. (lat. 47°28'50" N., long. 119°48'50" W.)

Ap1—0 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium granular structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots; few very fine interstitial pores; 6 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; clear wavy boundary.

Ap2—7 to 10 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; neutral; clear wavy boundary.

Bw—10 to 17 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores; 4 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

2Btk—17 to 26 inches; brown (10YR 5/3) gravelly clay loam, brown (10YR 4/3) moist; strong medium prismatic structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores and few medium interstitial pores; many distinct clay films on faces of peds; common filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on faces of peds and rock fragments; 8 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 10 percent cobbles; violently effervescent; moderately alkaline; clear wavy boundary.

2Bk—26 to 33 inches; very pale brown (10YR 8/2) gravelly clay loam, light yellowish brown (10YR 6/4) moist; massive; hard, very firm, slightly sticky and slightly plastic; few very fine interstitial pores; many distinct continuous coatings of secondary carbonates on faces of peds and rock fragments and disseminated carbonates throughout matrix; 20 percent gravel and 10 percent cobbles; violently effervescent; strongly alkaline; abrupt wavy boundary.

3Bkqm1—33 to 37 inches; indurated duripan cemented with secondary carbonates and silica and with cobbles and gravel encased in the matrix; many distinct continuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on surface of duripan; violently effervescent; gradual wavy boundary.

3Bkqm2—37 to 57 inches; stratified layers of weakly cemented and moderately

cemented very cobbly and very gravelly old alluvium interspersed with layers of very cobbly and very gravelly fine sandy loam; abrupt wavy boundary.
4R—57 inches; basalt.

The particle-size control section averages 25 to 35 percent clay, less than 15 percent fine sand or coarser, and 2 to 25 percent rock fragments. Depth to secondary carbonates is 15 to 30 inches. Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The A horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist.

The 2Btk and 2Bk horizons have value of 5 to 8 dry and 4 to 6 moist and chroma of 2 to 4 dry or moist. They are gravelly clay loam, clay loam, or gravelly loam.

The 3Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Durixerolls

Soil depth: Moderately deep
Drainage class: Moderately well drained and well drained
Landform: Glaciated plateaus
Parent material: Loess mixed with volcanic ash over a duripan over glacial till or glaciolacustrine deposits
Slope range: 0 to 45 percent
Elevation: 900 to 3,000 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Taxonomic classification: Durixerolls

Representative pedon of Durixerolls in an area of Durixerolls-Halaquepts complex, nearly level, about 1 mile southwest of St. Andrews; about 1,500 feet south and 100 feet east of the northwest corner of sec. 4, T. 25 N., R. 27 E. (lat. 47°41'28" N., long. 119°26'02" W.)

Ap—0 to 9 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common medium interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; disseminated carbonates throughout matrix; strongly effervescent; moderately alkaline; clear smooth boundary.
Bk—9 to 21 inches; gray (5Y 5/1) cobbly loam, very dark grayish brown (2.5Y 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common medium tubular and vesicular pores; few faint coatings of secondary carbonates on faces of peds, on rock fragments, and lining pores and disseminated carbonates throughout matrix; 10 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 15 percent cobbles; strongly effervescent; strongly alkaline; abrupt wavy boundary.
Bkqm—21 to 30 inches; gray (5Y 6/1) weakly cemented duripan that crushes to cobbly loam, very dark grayish brown (2.5Y 3/2) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few very fine roots in mats; common very fine and few medium tubular pores; few distinct discontinuous coatings of

secondary carbonates on duripan surface; common distinct coatings of secondary carbonates and few distinct silica coatings that are yellow (2.5Y 8/6) when dry on rock fragments; 5 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel and 20 percent cobbles; strongly effervescent; strongly alkaline; abrupt smooth boundary.

2Bk1—30 to 34 inches; gray (5Y 6/1) cobbly sandy loam, very dark grayish brown (2.5Y 3/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine interstitial pores; common faint and few distinct coatings of secondary carbonates on rock fragments and disseminated carbonates throughout matrix; 10 percent gravel and 15 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.

2Bk2—34 to 60 inches; gray (5Y 5/1) very gravelly coarse sandy loam, very dark gray (10YR 3/1) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium tubular pores and few large vesicular pores; 20 percent coarse and very coarse sand-sized volcanic ash; common fine platelike soft masses of secondary carbonates in seams; common faint and few distinct coatings of secondary carbonates on rock fragments; 45 percent gravel and 10 percent cobbles; strongly effervescent; moderately alkaline.

The mollic epipedon is 9 to 24 inches thick. Depth to the duripan is 20 to 40 inches. Ponding is rare in winter and spring.

The Ap horizon has value of 4 or 5 dry and chroma of 1 to 3 dry or moist. It is fine sandy loam or loam.

The Bk horizon has hue of 10YR, 5Y, or 2.5Y, value of 5 or 6 dry, and chroma of 1 to 3 dry or moist. The fine-earth fraction is fine sandy loam, loam, or silt loam with 5 to 35 percent rock fragments.

The Bkqm horizon has hue of 2.5Y or 5Y and value of 5, 6, or 7 dry and 3 or 4 moist. It is weakly cemented or moderately cemented with carbonates and silica.

The 2Bk horizon has hue of 2.5Y, 5Y, or 10YR, value of 5 or 6 dry and 2 or 3 moist, and chroma of 1 or 2 dry or moist. The fine-earth fraction is sandy loam, coarse sandy loam, loam, silt loam, or stratified fine sandy loam and loam. The horizon has 5 to 55 percent rock fragments. Some pedons have 15 to 20 percent durinodes.

Dutchenry Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 30 percent
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Durixerolls

Typical pedon of Dutchenry ashy fine sandy loam in an area of Norax-Dutchenry-Dougville complex, 3 to 8 percent slopes, about 3 miles northeast of Waterville; about 500 feet north and 250 feet east of the southwest corner of sec. 1, T. 25 N., R. 22 E. (lat. 47°41'12" N., long. 120°01'35" W.)

Ap—0 to 7 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark gray (10YR 3/1) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots;

few very fine tubular pores and common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

A1—7 to 15 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores and few very fine interstitial pores; 30 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

A2—15 to 24 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores and common very fine and few fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bk—24 to 33 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine tubular pores and common very fine and few fine interstitial pores; few fine irregular soft masses of secondary carbonates that are violently effervescent and disseminated carbonates throughout matrix that are slightly effervescent; 6 percent calcium carbonate equivalent; 20 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel-sized duripan fragments; slightly alkaline; abrupt wavy boundary.

2Bkqm1—33 to 37 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are white (10YR 8/1) and very pale brown (10YR 8/3) when dry on surface of duripan; violently effervescent; clear wavy boundary.

2Bkqm2—37 to 42 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—42 inches; basalt.

The mollic epipedon is 20 to 25 inches thick. Thickness of the volcanic ash influence and depth to the duripan are 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry and 1 or 2 moist.

The A1 horizon is neutral or slightly alkaline.

The A2 horizon has chroma of 2 or 3 moist. It is ashy fine sandy loam, ashy loam, or ashy silt loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist. It is ashy fine sandy loam, ashy loam, or ashy silt loam. The calcium carbonate equivalent is 1 to 10 percent. The horizon is slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Ebadlow Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Fans of nonglaciated plateaus
Parent material: Loess over colluvium derived from basalt
Slope range: 3 to 15 percent
Elevation: 2,500 to 3,200 feet

Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Ultic Argixerolls

Typical pedon of Ebadlow silt loam, 3 to 8 percent slopes, about 3 miles south of Waterville; about 1,200 feet north and 110 feet west of the southeast corner of sec. 3, T. 24 N., R. 22 E. (lat. 47°35'57" N., long. 120°02'36" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few fine interstitial pores; 1 percent coarse and very coarse sand-sized volcanic ash; 2 percent gravel; neutral; abrupt smooth boundary.

Bt1—8 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; few faint clay films on faces of peds; 1 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Bt2—17 to 32 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores; common distinct clay films on faces of peds and lining pores; common distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 5 percent gravel; neutral; clear smooth boundary.

2Bt3—32 to 49 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine interstitial pores; many prominent clay films on faces of peds; common distinct clay films that are yellowish brown (10YR 5/4) when dry and few distinct clay films that are brown (10YR 4/3) when dry on rock fragments; 35 percent gravel and 35 percent cobbles; neutral; clear smooth boundary.

3BCt—49 to 60 inches; yellowish brown (10YR 5/4) extremely cobbly sandy loam, dark yellowish brown (10YR 3/4) moist; single grain; soft, loose, nonsticky and slightly plastic; common very fine roots; common fine and medium interstitial pores; common distinct clay films that are light yellowish brown (10YR 6/4) when dry on rock fragments; 40 percent gravel and 40 percent cobbles; neutral.

The mollic epipedon is 10 to 18 inches thick. The particle-size control section averages 18 to 27 percent clay, more than 15 percent fine sand or coarser, and 10 to 20 percent rock fragments. Depth to the 2Bt horizon is 25 to 35 inches. Some pedons have secondary carbonate accumulations between 46 and 60 inches.

The Ap horizon has chroma of 2 or 3 dry or moist.

The Bt1 horizon has chroma of 3 or 4 moist. It has 2 to 5 percent rock fragments.

The Bt2 horizon has chroma of 3 or 4 moist. It has 5 to 10 percent rock fragments.

The 2Bt3 horizon has value and chroma of 3 or 4 moist. It is very cobbly loam or extremely cobbly loam. It has 50 to 70 percent rock fragments.

The 3BCt horizon has value of 3 or 4 moist. It has 60 to 80 percent rock fragments.

Ellisforde Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces and glaciated plateaus
Parent material: Loess over glaciolacustrine deposits

Slope range: 0 to 65 percent
Elevation: 700 to 2,600 feet
Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 120 to 190 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Ellisforde fine sandy loam, 3 to 8 percent slopes (fig. 20), about 8 miles southwest of Wells Dam; about 500 feet south of the center of sec. 16, T. 27 N., R. 23 E. (lat. 47°50'25" N., long. 120°57'25" W.)

Ap—0 to 10 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few very fine tubular pores; neutral; clear smooth boundary.

Bw—10 to 26 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak medium subangular structure; soft, friable, nonsticky and nonplastic;

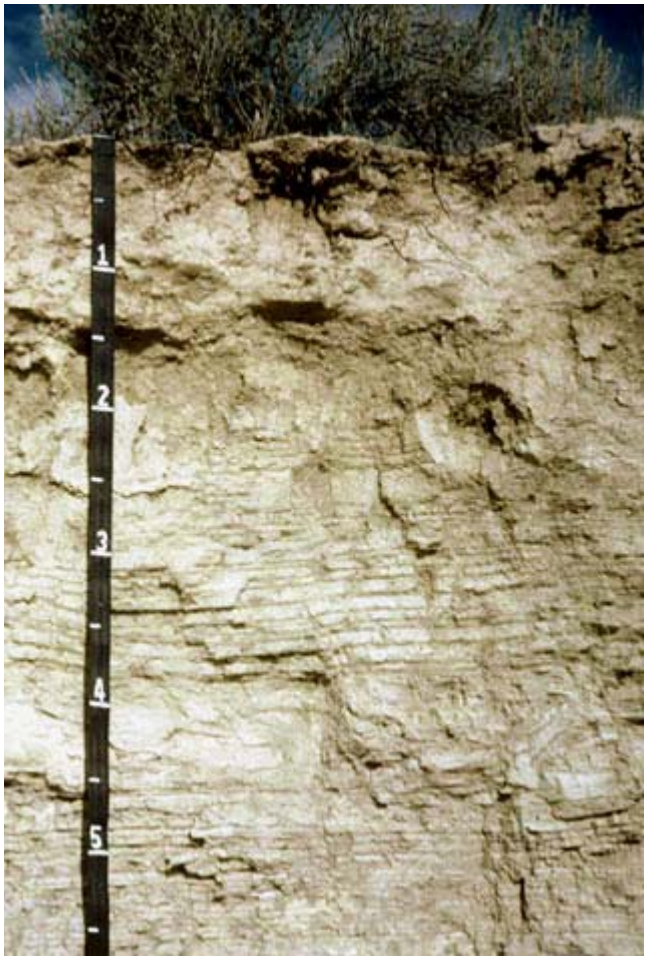


Figure 20.—Profile of an Ellisforde fine sandy loam. Loess over glaciolacustrine deposits is at a depth of about 30 inches. Numerals on the tape are in feet.

common very fine roots; few fine and very fine interstitial pores; slightly alkaline; clear wavy boundary.

2Bk—26 to 60 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; many very fine and fine tubular pores; common fine filaments of secondary carbonates in pores and few fine and medium platelike soft masses of secondary carbonates in seams; strongly effervescent; moderately alkaline.

The mollic epipedon is 8 to 16 inches thick. Depth to the 2Bk horizon is 20 to 40 inches. The particle-size control section has less than 15 percent fine sand or coarser.

The Ap horizon has value of 4 to 6 dry and 3 to 5 moist and chroma of 2 or 3 dry or moist. It is fine sandy loam, very fine sandy loam, loam, or silt loam.

The Bw horizon has value of 4 to 6 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is silt loam, loam, or very fine sandy loam. It is neutral to moderately alkaline.

The 2Bk horizon has value of 6 or 7 dry and 4 to 6 moist and chroma of 2 or 3 dry or moist. It is silt loam with thin strata of loam, very fine sandy loam, sandy loam, or loamy very fine sand. It is slightly alkaline to strongly alkaline.

The Ellisforde soils in detailed soil map units 158 and 161 are a taxadjunct to the Ellisforde series. These soils do not have a mollic epipedon because of the low content of organic matter. These soils are classified as Xeric Haplocambids.

Elvedere Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Depressions, drainageways, and glacial lake terraces of glaciated plateaus
Parent material: Glaciolacustrine deposits
Slope range: 0 to 45 percent
Elevation: 1,400 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine, mixed, superactive, mesic Xeric Paleargids

Typical pedon of Elvedere silt loam in an area of Leahy-Elvedere-Halaquepts complex, 0 to 3 percent slopes, about 8 miles southeast of Mansfield; about 2,200 feet north and 60 feet west of the southeast corner of sec. 5, T. 26 N., R. 27 E. (lat. 47°46'40" N., long. 119°27'05" W.)

E—0 to 10 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine roots; common medium tubular and interstitial pores; neutral; abrupt smooth boundary.

Bt—10 to 18 inches; gray (5Y 6/1) silty clay loam, olive (5Y 4/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; common fine tubular pores; common distinct clay films that are brown (10YR 5/3) when dry on faces of peds; trace of coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

Bk1—18 to 34 inches; light olive gray (5Y 6/2) silty clay loam, olive (5Y 5/3) moist;

moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine interstitial and tubular pores; few faint clay films that are yellow (2.5Y 7/6) when dry on faces of peds and lining pores; few fine filaments of secondary carbonates in pores, few distinct coatings and fine and medium platelike soft masses of secondary carbonates in seams and between horizontal laminations, and disseminated carbonates throughout matrix; trace of coarse and very coarse sand-sized volcanic ash; violently effervescent; moderately alkaline; gradual wavy boundary.

Bk2—34 to 43 inches; light olive gray (5Y 6/2) silty clay loam, olive gray (5Y 4/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few fine tubular and interstitial pores; few fine filaments of secondary carbonates in pores, few distinct coatings and fine and medium platelike soft masses of secondary carbonates in seams and between horizontal laminations, and disseminated carbonates throughout matrix; violently effervescent; moderately alkaline; gradual wavy boundary.

Bk3—43 to 60 inches; light gray (5Y 7/2) stratified silty clay loam, olive (5Y 4/3) moist; weak thin platy structure; slightly hard, firm, moderately sticky and moderately plastic; few fine filaments of secondary carbonates in pores, few distinct coatings and fine and medium platelike soft masses of secondary carbonates in seams and between horizontal varves, and disseminated carbonates throughout matrix; violently effervescent; moderately alkaline.

Depth to the Bk horizon is 7 to 18 inches. The particle-size control section has 35 to 45 percent clay, less than 15 percent fine sand or coarser, and less than 5 percent rock fragments.

The E horizon has hue of 10YR or 2.5Y and value of 6 or 7 dry and 4 or 5 moist. It is neutral or slightly alkaline.

The Bt horizon has hue of 10YR or 2.5Y, value of 6 or 7 dry and 4 or 5 moist, and chroma of 1 to 4 dry or moist. It is silty clay loam or silty clay. It is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 10YR or 2.5Y, value of 6 to 7 dry and 4 to 6 moist, and chroma of 2 or 3 dry and 2 to 4 moist. It is silty clay or silty clay loam. It is moderately alkaline or strongly alkaline.

Entiat Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Residuum and colluvium derived from granite
Slope range: 8 to 70 percent
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Aridic Haploxerolls

Typical pedon of Entiat gravelly fine sandy loam in an area of Entiat-Rock outcrop-Torriorthents complex, 30 to 70 percent slopes, about 3 miles north of Orondo; about 1,380 feet east of the center of sec. 16, T. 25 N., R. 21 E. (lat. 47°39'50" N., long. 120°12'06" W.)

A—0 to 6 inches; brown (10YR 5/4) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable,

nonsticky and nonplastic; many fine and very fine roots; few fine and medium tubular pores; 15 percent gravel, 5 percent cobbles, and 1 percent stones; slightly alkaline; clear wavy boundary.
Bw1—6 to 11 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; few fine and medium tubular and interstitial pores; 30 percent gravel and 10 percent cobbles; slightly alkaline; gradual wavy boundary.
Bw2—11 to 17 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, nonsticky and slightly plastic; common fine and medium roots; many fine and medium tubular pores; 40 percent gravel and 10 percent cobbles; slightly alkaline; abrupt wavy boundary.
2Cr—17 inches; granodiorite.

The mollic epipedon is 6 to 11 inches thick. Depth to bedrock is 12 to 20 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw1 horizon has value of 4 or 5 dry and chroma of 2 to 4 dry or moist. It is gravelly or very gravely fine sandy loam, loam, or sandy loam. It has 30 to 50 percent rock fragments.

The Bw2 horizon has value of 4 to 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is very gravelly sandy loam, very gravelly fine sandy loam, or very gravelly loam. It has 40 to 60 percent gravel and 0 to 10 percent cobbles.

Ephrata Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 2 to 5 percent
Elevation: 700 to 1,000 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 49 to 51 degrees
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Ephrata fine sandy loam, 2 to 5 percent slopes, about 0.75 mile east of Moses Lake; about 550 feet south and 1,000 feet west of the northeast corner of sec. 24, T. 19 N., R. 28 E. (lat. 47°07'46" N., long. 119°14'19" W.)

Ap—0 to 9 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many fine tubular pores; 10 percent gravel; slightly alkaline; abrupt smooth boundary.
Bw1—9 to 16 inches; pale brown (10YR 6/3) gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; common fine tubular pores; 15 percent gravel; slightly alkaline; clear wavy boundary.
Bw2—16 to 23 inches; pale brown (10YR 6/3) gravelly fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; common fine tubular pores; 20 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.
C1—23 to 25 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR

5/3) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine roots; common very fine tubular pores; 30 percent gravel and 10 percent cobbles; strongly effervescent; moderately alkaline; clear wavy boundary.

2C2—25 to 60 inches; gray (10YR 5/1) extremely gravelly coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; coatings of carbonates and silica on undersides of gravel and cobbles; 55 percent gravel and 15 percent cobbles; strongly effervescent; moderately alkaline.

Depth to the 2C horizon is 20 to 40 inches. The particle-size control section averages 5 to 35 percent rock fragments in upper part and 50 to 75 percent in the lower part.

The Ap horizon has value of 5 or 6 dry and chroma of 2 or 3 moist or dry. It is fine sandy loam or gravelly sandy loam.

The Bw horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It is fine sandy loam, gravelly fine sandy loam, or gravelly sandy loam. It is slightly alkaline or moderately alkaline.

The C1 horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist.

The 2C2 horizon is very cobbly coarse sand, very gravelly coarse sand, or extremely gravelly coarse sand.

Esquatzel Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Low positions in Moses Coulee
Parent material: Silty alluvium, or silty alluvium over a duripan
Slope range: 0 to 3 percent
Elevation: 800 to 1,800 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Torrifluventic Haploxerolls

Typical pedon of Esquatzel silt loam, 0 to 3 percent slopes (fig. 21), about 10 miles northeast of Palisades; about 2,100 feet south and 700 feet west of the northeast corner of sec. 33, T. 23 N., R. 25 E. (lat. 47°27'56" N., long. 119°41'07" W.)

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common fine interstitial pores; neutral; clear smooth boundary.

A—7 to 12 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, firm, nonsticky and slightly plastic; common very fine and few fine roots; many very fine and fine tubular and interstitial pores; slightly alkaline; clear wavy boundary.

Bw1—12 to 19 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and fine tubular and interstitial pores; slightly alkaline; gradual wavy boundary.

Bw2—19 to 28 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly



Figure 21.—Profile of an Esquatzel silt loam. This very deep soil formed in silty alluvium.

sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular and interstitial pores; slightly alkaline; clear smooth boundary.

Bk1—28 to 46 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular and interstitial pores; few fine filaments of secondary carbonates in pores; slightly effervescent; moderately alkaline; clear wavy boundary.

Bk2—46 to 60 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, nonsticky and slightly plastic; few very fine roots; common very fine and fine tubular pores; common fine filaments of secondary carbonates in pores; strongly effervescent; moderately alkaline.

The mollic epipedon is 10 to 20 inches thick. The particle-size control section has less than 15 percent fine sand or coarser. Depth to secondary carbonates is 20 to 40 inches. Where present, depth to the duripan is 40 to 60 inches. Occasional flooding occurs in winter and spring.

The Ap horizon has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw and Bk horizons have value of 5 or 6 dry and chroma of 2, 3, or 4 dry or moist. They are silt loam but may contain lenses of very fine sandy loam in the lower part of the particle-size control section in some pedons. The horizons are slightly alkaline or moderately alkaline.

The Bk horizon typically has 1 to 5 percent calcium carbonate, but it can have as much as 15 percent below a depth of 40 inches.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Ewall Series

Soil depth: Very deep
Drainage class: Excessively drained
Landform: Terraces and kames of glaciated plateaus
Parent material: Eolian deposits over sandy glacial outwash
Slope range: 3 to 15 percent
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Mixed, mesic Typic Xeropsamments

Typical pedon of Ewall loamy fine sand, 3 to 15 percent slopes, about 3 miles northeast of Tag Ear Lake; about 100 feet west and 200 feet south of the northeast corner of sec. 1, T. 29 N., R. 28 E. (lat. 48°02'54" N., long. 119°14'01" W.)

Ap—0 to 8 inches; yellowish brown (10YR 5/4) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 5 percent gravel; neutral; clear wavy boundary.

A—8 to 18 inches; yellowish brown (10YR 5/4) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 5 percent gravel; neutral; clear wavy boundary.

AC—18 to 28 inches; yellowish brown (10YR 5/4) loamy coarse sand, dark brown (10YR 3/3) moist; weak fine granular structure; loose, very friable, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 10 percent gravel; moderately alkaline; abrupt wavy boundary.

C1—28 to 35 inches; multicolored gravelly sand; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 20 percent gravel; moderately alkaline; abrupt smooth boundary.

C2—35 to 60 inches; multicolored sand; single grain; loose, nonsticky and nonplastic; many very fine interstitial pores; 5 percent gravel; slightly alkaline.

The particle-size control section averages 0 to 5 percent clay and 0 to 5 percent gravel.

The A horizon has value of 4 to 6 dry and 2 to 4 moist and chroma of 2 or 3 dry or moist. It has less than 1 percent organic matter content. The dark color is inherited from the parent material.

The AC horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 2 to 4 dry or moist. It is loamy coarse sand or loamy sand with 0 to 10 percent gravel. It is neutral to moderately alkaline. The dark color is inherited from the parent material.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 1 to 4 dry or moist, or it is multicolored. The fine-earth fraction is sand or coarse sand. The horizon has 0 to 25 percent gravel and 0 to 5 percent cobbles. It is slightly alkaline or moderately alkaline.

Farmer Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess
Slope range: 0 to 30 percent
Elevation: 2,400 to 3,200
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Farmer ashy fine sandy loam, 0 to 8 percent slopes, about 3.5 miles north of Waterville; about 70 feet south and 300 feet west of the northeast corner of sec. 4, T. 26 N., R. 22 E. (lat. 47°41'59" N., long. 120°03'48" W.)

Ap—0 to 11 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; strong medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; slightly acid; clear smooth boundary.

BA—11 to 19 inches; yellowish brown (10YR 5/4) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent pumice 2 to 5 millimeters in diameter; neutral; clear smooth boundary.

2Bt1—19 to 28 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine interstitial pores; few faint clay films on faces of peds; 3 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

2Bt2—28 to 40 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; very hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine interstitial pores and few fine tubular pores; few faint clay films on faces of peds and lining pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

3Bt3—40 to 52 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine interstitial pores; few faint clay films on faces of peds; neutral; gradual wavy boundary.

3Bt4—52 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish

brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine interstitial pores; few faint clay films on faces of peds; neutral.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 20 inches. The particle-size control section has 10 to 18 percent clay and less than 15 percent fine sand or coarser. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has chroma of 2 or 3 dry or moist.

The BA horizon has chroma of 3 or 4 dry. It is ashy fine sandy loam, ashy loam, or ashy silt loam.

The 2Bt horizon has chroma of 3 or 4 moist. It is neutral or slightly alkaline.

The 3Bt horizon is neutral or slightly alkaline.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Farrell Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces of glaciated plateaus
Parent material: Loess over glaciofluvial deposits
Slope range: 0 to 5 percent
Elevation: 1,400 to 1,700 feet
Mean annual precipitation: 10 to 11 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 135 to 185 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Farrell very fine sandy loam, 0 to 5 percent slopes, about 7 miles northwest of Ephrata; about 20 feet north and 2,460 feet west of the southeast corner of sec. 4, T. 22 N., R. 25 E. (lat. 47°25'33" N., long. 119°41'32" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; clear wavy boundary.

Bw—8 to 20 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; common very fine tubular pores; moderately alkaline; clear wavy boundary.

Bk1—20 to 40 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine roots; common spheroidal aggregates of secondary carbonates; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bk2—40 to 54 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; many spheroidal aggregates of secondary carbonates; violently effervescent; moderately alkaline; abrupt wavy boundary.

3Bk3—54 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few spheroidal aggregates of secondary carbonates; violently effervescent; strongly alkaline.

The mollic epipedon is 7 to 12 inches thick. Depth to secondary carbonates is 15 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam, loam, or silt loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 6 or 7 dry and 4 or 5 moist and chroma of 2 or 3 dry or moist. It is stratified coarse sandy loam, fine sandy loam, very fine sandy loam, or silt loam. It is moderately alkaline or strongly alkaline. It has 2 to 10 percent calcium carbonate equivalent.

Finley Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Fan piedmonts
Parent material: Loamy alluvium over sandy alluvium
Slope range: 0 to 15 percent
Elevation: 800 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Finley stony loam, 3 to 8 percent slopes, about 1 mile southwest of Palisades; about 1,320 feet south and 500 feet west of the northeast corner of sec. 15, T. 22 N., R. 23 E. (lat. 47°23'55" N., long. 119°55'15" W.)

A—0 to 6 inches; light yellowish brown (10YR 6/4) stony loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; few fine tubular and interstitial pores; 5 percent gravel, 5 percent cobbles, and 5 percent stones; moderately alkaline; clear smooth boundary.

Bw—6 to 22 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine interstitial pores; 30 percent gravel and 10 percent cobbles; moderately alkaline; clear smooth boundary.

Bk—22 to 26 inches; light gray (10YR 7/2) extremely gravelly loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; common distinct coatings of secondary carbonates lining pores and many distinct coatings of secondary carbonates on underside of rock fragments; 65 percent gravel and 10 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bk—26 to 60 inches; multicolored extremely gravelly loamy sand; single grain; loose, nonsticky and nonplastic; common distinct coatings of secondary carbonates on underside of rock fragments; 65 percent gravel and 25 percent cobbles; strongly effervescent; moderately alkaline.

The particle-size control section averages 35 to 75 percent rock fragments. Depth to secondary carbonates is 14 to 26 inches. Depth to the 2Bk horizon is 20 to 40 inches.

The A horizon has value of 5 to 7 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It has less than 1 percent organic matter content.

The Bw and Bk horizons have value of 5 to 7 dry and 3 or 4 moist and chroma of 2

to 4 dry or moist. The fine-earth fraction is fine sandy loam, loam, or sandy loam. The horizons have 15 to 75 percent rock fragments.

The 2Bk horizon is multicolored, or it has value of 6 or 7 dry and 4 to 6 moist and chroma of 2 or 3 dry or moist. It has 1 to 5 percent calcium carbonate.

Ginnis Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Glaciated plateaus
Parent material: Residuum and colluvium derived from granite
Slope range: 3 to 70 percent
Elevation: 1,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Ultic Haploxerolls

Typical pedon of Ginnis fine sandy loam, 3 to 15 percent slopes, about 4 miles northeast of Wilson Butte; about 800 feet north and 400 feet east of the southwest corner of sec. 30, T. 30 N., R. 30 E. (lat. 48°03'57" N., long. 119°06'07" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial and tubular pores; 5 percent gravel; neutral; clear wavy boundary.
A—10 to 20 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure, soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine interstitial pores; trace of coarse and very coarse sand-sized volcanic ash; 10 percent gravel; neutral; clear wavy boundary.
Bw1—20 to 29 inches; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 10 percent gravel; neutral; clear wavy boundary.
Bw2—29 to 35 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; loose, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 25 percent gravel; neutral; abrupt wavy boundary.
2Cr—35 inches; multicolored weathered granite.

The mollic epipedon is 9 to 14 inches thick. The particle-size control section averages 10 to 35 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist. It is sandy loam, gravelly sandy loam, or gravelly coarse sandy loam with 10 to 30 percent gravel.

Grinrod Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Scarp slopes of nonglaciated plateaus
Parent material: Colluvium and residuum derived from basalt

Slope range: 8 to 70 percent
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Aridic Argixerolls

Typical pedon of Grinrod very cobbly silt loam in area of Grinrod-Rock outcrop-Rubble land complex, 30 to 70 percent slopes, about 5 miles west of Waterville; about 1,320 feet south and 1,320 feet east of the northwest corner of sec. 24, T. 25 N., R. 21 E. (lat. 47°38'58" N., long. 120°08'50" W.)

A—0 to 6 inches; grayish brown (10YR 5/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

Bt1—6 to 10 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; slightly hard, firm, nonsticky and slightly plastic; common very fine roots; common fine interstitial pores; few faint discontinuous clay films on faces of peds and many distinct continuous clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 20 percent gravel, 30 percent cobbles, and 5 percent stones; slightly alkaline; gradual wavy boundary.

Bt2—10 to 22 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine and medium interstitial pores; common faint and few distinct discontinuous clay films on faces of peds and many distinct continuous clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 25 percent gravel, 40 percent cobbles, and 5 percent stones; slightly alkaline; abrupt wavy boundary.

2R—22 inches; basalt.

The mollic epipedon is 10 to 12 inches thick. The particle-size control section has 18 to 35 percent clay and 40 to 80 percent rock fragments. The profile is neutral or slightly alkaline. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is extremely cobbly or very cobbly loam.

Halaquepts

Soil depth: Moderately deep to very deep
Drainage class: Poorly drained
Landform: Swales, depressions, and drainageways of glaciated plateaus and swales of terraces
Parent material: Loess mixed with volcanic ash over glacial till or glaciolacustrine deposits
Slope range: 0 to 5 percent
Elevation: 700 to 3,200 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Taxonomic classification: Halaquepts

Representative pedon of Halaquepts (fig. 22) in an area of Halaquepts complex, nearly level, about 1 mile southeast of Stallard Lake; about 1,000 feet south and 600 feet west of the northeast corner of sec. 34, T. 26 N., R. 27 E. (lat. 47°42'35" N., long. 119°24'30" W.)

A1—0 to 3 inches; olive (5Y 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; few very fine and fine interstitial pores; disseminated carbonates throughout matrix; 15 percent coarse and very coarse sand-sized volcanic ash; strongly effervescent; very strongly alkaline; clear smooth boundary.

A2—3 to 15 inches; light olive gray (5Y 6/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; few very fine interstitial pores; disseminated carbonates throughout matrix; 15 percent coarse and very coarse sand-sized volcanic ash; strongly effervescent; very strongly alkaline; clear smooth boundary.

Bk—15 to 28 inches; olive gray (5Y 5/2) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; common fine interstitial pores; few faint



Figure 22.—Profile of Halaquepts. The duripan is at a depth of about 30 inches. Numerals on the tape are in feet.

coatings of secondary carbonates lining pores and disseminated carbonates throughout matrix; 20 percent coarse and very coarse sand-sized volcanic ash; violently effervescent; very strongly alkaline; clear smooth boundary.

Bkg—28 to 34 inches; light olive gray (5Y 6/2) fine sandy loam, very dark gray (10YR 3/1) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine and few medium tubular pores; few faint coatings of secondary carbonates lining pores and disseminated carbonates throughout matrix; 30 percent coarse and very coarse sand-sized volcanic ash; common distinct redoximorphic concentrations that are black (10YR 2/1) when moist on faces of peds; violently effervescent; very strongly alkaline; clear smooth boundary.

2Bkqm—34 to 38 inches; light gray (5Y 7/2) weakly cemented duripan that crushes to silty clay loam, grayish brown (2.5Y 5/2) moist; massive; very hard, very firm, moderately sticky and moderately plastic; common very fine and fine and few medium tubular pores; common faint coatings of secondary carbonates lining pores, common distinct coatings of secondary carbonates in fractures and seams, and disseminated carbonates throughout matrix; 10 percent coarse and very coarse sand-sized volcanic ash; common distinct redoximorphic concentrations that are black (10YR 2/1) when moist in fractures and seams; violently effervescent; very strongly alkaline; abrupt wavy boundary.

3Bkg—38 to 43 inches; olive gray (5Y 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weakly smeary; weak fine and medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine tubular pores; few fine filaments of secondary carbonates in pores and disseminated carbonates throughout matrix; 12 percent coarse and very coarse sand-sized volcanic ash; few redoximorphic concentrations that are black (10YR 2/1) when moist on faces of peds; strongly effervescent; strongly alkaline; abrupt wavy boundary.

4Cg—43 to 60 inches; gray (5Y 5/1) loam, dark olive gray (5Y 3/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few fine and medium tubular pores; disseminated carbonates throughout matrix; 5 percent coarse and very coarse sand-sized volcanic ash; few redoximorphic concentrations that are dark brown (10YR 3/4) when moist in fractures; strongly effervescent; strongly alkaline.

Where present, depth to the duripan is 20 to 60 inches. The profile is strongly alkaline or very strongly alkaline. Ponding is rare in winter and spring.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist.

The Bk and Bkg horizons have hue of 5Y, 2.5Y, or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 1 to 4 dry or moist. They are very fine sandy loam, silt loam, fine sandy loam, or loam.

The 2Bkqm horizon has hue of 5Y, 2.5Y, or 10YR and value of 5 or 6 dry. It is weakly cemented or moderately cemented with carbonates and silica. It crushes to silty clay loam or sandy loam.

The 3Bkg and 4Cg horizons have hue of 5Y, 10YR, or 2.5Y, value of 5 to 8 dry and 3 to 6 moist, and chroma of 1 or 2 dry or moist. The fine-earth fraction is fine sandy loam, loam, sandy loam, or sand with 0 to 50 percent gravel and cobbles.

Hanning Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: North aspects of nonglaciated plateaus
Parent material: Loess over older loess

Slope range: 3 to 15 percent
Elevation: 2,500 to 2,900 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Pachic Argixerolls

Typical pedon of Hanning silt loam, 3 to 8 percent slopes, about 2.5 miles south of Waterville; about 300 feet west and 500 feet north of the southeast corner of sec. 33, T. 25 N., R. 22 E. (lat. 47°36'45" N., long. 120°03'30" W.)

A—0 to 17 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine interstitial pores; slightly acid; clear wavy boundary.
Bt1—17 to 28 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; common fine interstitial pores; few faint discontinuous clay films on faces of peds and lining pores; neutral; gradual wavy boundary.
Bt2—28 to 38 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; strong medium prismatic structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine roots; common fine interstitial and tubular pores; common distinct discontinuous clay films on faces of peds and lining pores; slightly alkaline; gradual wavy boundary.
Bt3—38 to 51 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine, fine, and medium interstitial pores; common distinct discontinuous clay films on faces of peds and lining pores; slightly alkaline; gradual wavy boundary.
Bt4—51 to 60 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine and fine interstitial and tubular pores; common distinct discontinuous clay films on faces of peds and lining pores; slightly alkaline.

The mollic epipedon is 20 to 33 inches thick. The particle-size control section has 18 to 27 percent clay and less than 15 percent fine sand or coarser. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is slightly acid or neutral.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 moist. It is neutral to moderately alkaline.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Haploxerolls

Soil depth: Very deep
Drainage class: Well drained and moderately well drained
Landform: Terraces and depressions of plateaus
Parent material: Alluvium
Slope range: 0 to 5 percent
Elevation: 1,400 to 4,000 feet

Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Haploxerolls

Representative pedon of Haploxerolls, moderately well drained, nearly level to gently sloping, about 1.5 miles southwest of Waterville; about 1,320 feet west and 500 feet south of the northeast corner of sec. 32, T. 25 N., R. 22 E. (lat. 47°37'35" N., long. 120°06'02" W.)

Ap—0 to 5 inches; grayish brown (10YR 5/2) silt loam, black (10Y 2/1) moist; moderate fine subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

A1—5 to 9 inches; grayish brown (10YR 5/2) very fine sandy loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

A2—9 to 20 inches; brown (10YR 5/3) silt loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common fine interstitial pores; few faint clay films on surface of peds; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

A3—20 to 32 inches; dark grayish brown (10YR 4/2) silt loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; hard, very firm, slightly sticky and slightly plastic; few very fine roots; common fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt wavy boundary.

BA—32 to 43 inches; brown (10YR 5/3) ashy loamy sand, very dark grayish brown (10YR 3/2) moist; single grain; soft, very friable, nonsticky and nonplastic; few very fine roots; few coarse interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bw—43 to 60 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, nonsticky and slightly plastic; few very fine roots; few fine tubular pores; 40 percent coarse and very coarse sand-sized volcanic ash; few faint medium redoximorphic concentrations that are brown (10YR 5/3) when moist throughout matrix; neutral.

The mollic epipedon is 10 to 45 inches thick and has an irregular decrease in organic matter content and color as depth increases. The profile has 5 to 50 percent volcanic ash, of which 0 to 40 percent is coarse and very coarse and sand-sized. It is slightly acid to moderately alkaline.

The Ap horizon is fine sandy loam or silt loam.

The A horizon has value of 1 to 5 dry and 1 to 3 moist and chroma of 2 or 3 dry and 1 to 3 moist. It is very fine sandy loam, silt loam, or very gravelly sandy loam.

The BA horizon has value of 2 or 3 dry or moist. It is ashy loamy sand, ashy loam, or very gravelly ashy sand. It has 15 to 35 percent coarse and very coarse sand-sized volcanic ash.

The Bw horizon has value of 3 to 4 dry or moist. It is ashy fine sandy loam, very gravelly ashy sandy loam, or ashy loam. It is 15 to 50 percent coarse and very coarse sand-sized volcanic ash. Some pedons do not have redoximorphic concentrations or depletions.

The Bk horizon, where present, has value of 5 or 6 dry and chroma of 3 or 4 moist.

It is fine sandy loam, very fine sandy loam, or silt loam and may be stratified with gravelly sand. It is neutral to moderately alkaline.

The C horizon, where present, has value of 5 to 7 dry and 3 to 6 moist and chroma of 1 to 3 dry and 2 to 4 moist. It is extremely gravelly loamy sand, extremely gravelly coarse sand, or loamy fine sand and may be stratified. It is neutral or slightly alkaline.

Heytou Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess mixed with glacial till over dense glacial till
Slope range: 0 to 50 percent
Elevation: 1,300 to 2,900 feet
Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Heytou very stony loam in an area of Heytou-Stubblefield complex, 30 to 45 percent slopes, about 6 miles west of Mansfield; about 1,320 feet east of the northwest corner of sec. 26, T. 27 N., R. 24 E. (lat. 47°48'50" N., long. 119°48'50" W.)

A—0 to 10 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many very fine tubular pores; 20 percent gravel, 10 percent cobbles, and 5 percent stones; 1 percent boulders with some stones on surface; slightly alkaline; clear smooth boundary.

BA—10 to 19 inches; brown (10YR 4/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine roots; common fine tubular pores; 25 percent gravel, 15 percent cobbles, 5 percent stones, and 1 percent boulders; slightly alkaline; clear smooth boundary.

Bw—19 to 26 inches; gray (10YR 5/1) very cobbly loam, dark grayish brown (10YR 4/2) moist; massive; soft, friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; 25 percent gravel, 15 percent cobbles, 5 percent stones, and 1 percent boulders; moderately alkaline; abrupt smooth boundary.

Bkd—26 to 32 inches; gray (10YR 7/1) very cobbly loam, grayish brown (10YR 5/2) moist; massive; hard, very firm, slightly sticky and slightly plastic; few medium tubular pores; common fine to coarse discontinuous platelike masses of secondary carbonates about 1/8 inch thick in seams and fractures and many distinct continuous coatings of secondary carbonates on rock fragments; 30 percent gravel, 15 percent cobbles, 5 percent stones, and 1 percent boulders; violently effervescent; strongly alkaline; clear smooth boundary.

Cd—32 to 60 inches; grayish brown (10YR 5/2) dense till that crushes to very cobbly loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, nonsticky and nonplastic; few medium tubular pores; disseminated carbonates throughout matrix; 25 percent gravel, 20 percent cobbles, 5 percent stones, and 1 percent boulders; slightly effervescent; moderately alkaline.

The mollic epipedon is 10 to 20 inches thick. The particle-size control section has 35 to 60 percent rock fragments. Depth to secondary carbonates and dense glacial till is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 1 to 3 dry and 2 or 3 moist. It is neutral or slightly alkaline.

The BA and Bw horizons have value of 4 to 6 dry and 3 or 4 moist and chroma of 1 to 4 dry and 1 to 3 moist. They are gravelly, cobbly, very gravelly, or very cobbly loam or sandy loam.

The Bkd horizon has hue of 10YR or 2.5Y, value of 6 or 7 dry and 3 to 5 moist, and chroma of 1 to 4 dry and 2 or 3 moist. It is very gravelly or very cobbly loam, sandy loam, or coarse sandy loam. It is slightly alkaline to strongly alkaline. White coatings of secondary carbonates are on the underside of cobbles and stones.

The Cd horizon has hue of 10YR or 2.5YR, value of 6 or 7 dry and 4 or 5 moist, and chroma of 1 to 4 moist or dry. It crushes to very cobbly or very gravelly loam or sandy loam. It is slightly alkaline to strongly alkaline.

Horseflat Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 30 percent
Elevation: 1,500 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls

Typical pedon of Horseflat very cobbly loam in an area of Zen-Horseflat-Ralls complex, 8 to 15 percent slopes, about 12 miles southeast of Jameson Lake; about 700 feet east and 800 feet south of the northwest corner of sec. 4, T. 23 N., R. 26 E. (lat. 47°31'50" N., long. 119°34'30" W.)

Ap—0 to 8 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few fine interstitial pores; 15 percent gravel and 20 percent cobbles; neutral; clear wavy boundary.

Bt1—8 to 13 inches; brown (10YR 4/3) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine roots; common fine and very fine interstitial pores; common faint clay films on faces of peds and many distinct continuous clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 30 percent gravel and 15 percent cobbles; slightly alkaline; clear wavy boundary.

Bt2—13 to 16 inches; brown (10YR 4/3) extremely gravelly clay loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine and fine interstitial and tubular pores; common faint and few distinct clay films on faces of peds and many distinct continuous clay films that are brown (7.5YR 5/4) when dry on rock fragments; 50 percent gravel and 25 percent cobbles; slightly alkaline; abrupt wavy boundary.

R—16 inches; basalt.

The mollic epipedon is 7 to 17 inches thick and may include part or all of the argillic horizon. Depth to bedrock is 14 to 20 inches. The profile is neutral or slightly alkaline.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is very cobbly loam or very cobbly fine sandy loam.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6 dry, and chroma of 2 to 4 dry or moist. It is extremely gravelly clay loam, extremely cobbly loam, very gravelly loam, or very cobbly loam. It has 35 to 75 percent rock fragments.

Jordy Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess mixed colluvium over basalt
Slope range: 0 to 30 percent
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Jordy ashy fine sandy loam, 8 to 15 percent slopes, about 4 miles northwest of Waterville; about 2,100 feet north and 3,500 feet west of the southeast corner of sec. 36, T. 26 N., R. 21 E. (lat. 47°42'54" N., long. 120°08'48" W.)

Ap—0 to 5 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; slightly acid; clear wavy boundary.

A—5 to 12 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine interstitial pores; 30 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

2Bt1—12 to 18 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine tubular pores; few faint clay films on faces of peds; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

2Bt2—18 to 21 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine interstitial and tubular pores; few faint clay films on faces of peds and common distinct clay films that are yellowish brown (10YR 5/6) when dry on rock fragments; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.

2Bt3—21 to 23 inches; yellowish brown (10YR 5/4) gravelly silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine interstitial and tubular pores; common faint clay films on faces of peds and common distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel; slightly alkaline; abrupt smooth boundary.

3R—23 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 18 inches. The particle-size control section has 10 to 18 percent clay and more than 15 percent fine sand or coarser. Depth to bedrock is 20 to 40 inches.

The A horizon has chroma of 2 or 3 dry or moist. It is neutral to moderately acid.

The 2Bt horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 3 or 4 dry or moist. It has 0 to 15 percent gravel. It is neutral or slightly alkaline.

Kester Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Drainageways of nonglaciated plateaus
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 30 percent
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Haploxerolls

Typical pedon of Kester ashy fine sandy loam, 0 to 5 percent slopes, about 12 miles east-southeast of Waterville; about 1,900 feet north and 75 feet west of the southeast corner of sec. 8, T. 24 N., R. 24 E. (lat. 47°35'20" N., long. 119°49'59" W.)

Ap—0 to 13 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common fine interstitial pores and few fine tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bw1—13 to 25 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; common fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

Bw2—25 to 32 inches; light brownish gray (10YR 6/2) ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear smooth boundary.

BC—32 to 35 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; many fine and few medium interstitial pores; 30 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; slightly alkaline; abrupt wavy boundary.

2R—35 inches; basalt.

The mollic epipedon is 10 to 18 inches thick. Depth to bedrock and thickness of the volcanic ash influence are 20 to 40 inches.

The Ap horizon has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is ashy sandy loam or ashy fine sandy loam. It is neutral or slightly alkaline.

The BC horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 moist. It is neutral or slightly alkaline.

Kiakus Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Mounds on mountains
Parent material: Loess over basalt
Slope range: 3 to 60 percent
Elevation: 3,500 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical pedon of Kiakus loam in an area of Kiakus-Shinn-Lorena complex, 3 to 30 percent slopes, about 6 miles southwest of Waterville; about 1,200 feet east of the southeast corner of sec. 12, T. 24 N., R. 21 E. (lat. 47°34'55" N., long. 120°08'55" W.)

Oi—0.5 to 0 inch; undecomposed pine needles and twigs.
A1—0 to 3 inches; gray (10YR 5/1) loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and few coarse roots; common fine interstitial pores; 5 percent gravel; slightly acid; gradual wavy boundary.
A2—3 to 9 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and few coarse roots; few very fine and fine interstitial pores; 5 percent gravel; neutral; gradual wavy boundary.
Bt—9 to 22 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/2) moist; weak coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine interstitial pores; few faint clay films on faces of peds and common faint clay films that are brown (7.5YR 5/4) when dry on rock fragments; 5 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.
2R—22 inches; basalt.

The mollic epipedon is 20 to 30 inches thick. The particle-size control section averages 18 to 22 percent clay, more than 15 percent fine sand or coarser, and 5 to 15 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 or 2 dry or moist.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry, and chroma of 3 or 4 dry. It is loam or silty clay loam.

Kiona Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Scarp slopes of nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 25 to 65 percent
Elevation: 1,400 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Kiona cobbly very fine sandy loam, 25 to 65 percent slopes, about 5 miles southeast of Royal City; about 2,440 feet south and 1,540 feet east of the northwest corner of sec. 3, T. 15 N., R. 26 E. (lat. 46°49'06" N., long. 119°33'10" W.)

A—0 to 3 inches; brown (10YR 5/3) cobbly very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, nonsticky and slightly plastic; many very fine roots; many fine interstitial pores; 10 percent gravel and 15 percent cobbles with a few cobbles and stones on the surface; slightly alkaline; clear smooth boundary.

Bw—3 to 19 inches; brown (10YR 5/3) cobbly very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, friable, nonsticky and slightly plastic; few very fine roots; few very fine tubular pores; 15 percent gravel and 20 percent cobbles; slightly alkaline; clear wavy boundary.

Bk—19 to 60 inches; brown (10YR 5/3) very cobbly sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; few aggregates of secondary carbonates and coatings of secondary carbonates on gravel and cobbles; 30 percent gravel, 25 percent cobbles, and 1 percent stones; strongly effervescent; moderately alkaline.

Depth to secondary carbonates is 12 to 30 inches. The particle-size control section averages 35 to 75 percent rock fragments.

The A horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 or 3 dry or moist. It is cobbly very fine sandy loam, cobbly silt loam, very cobbly loam, or very cobbly very fine sandy loam.

The Bk horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 or 3 dry or moist, or it is dominantly dark-colored basaltic sand. It is very cobbly sandy loam, extremely cobbly loam, very cobbly silt loam, or extremely cobbly sandy loam. It is slightly alkaline or moderately alkaline. It has 1 to 5 percent calcium carbonate equivalent.

Leahy Series

Soil depth: Very deep
Drainage class: Moderately well drained
Landform: Drainageways of glaciated plateaus
Parent material: Glaciolacustrine deposits
Slope range: 0 to 3 percent
Elevation: 1,400 to 2,300 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine, mixed, superactive, mesic Xeric Natrargids

Typical pedon of Leahy very fine sandy loam in an area of Leahy-Elvedere-Halaquepts complex, 0 to 3 percent slopes, about 8 miles southeast of Mansfield; about 2,210 feet north and 20 feet west of the southeast corner of sec. 5, T. 26 N., R. 27 E. (lat. 47°46'40" N., long. 119°27'05" W.)

E—0 to 6 inches; gray (5Y 6/1) very fine sandy loam, olive gray (5Y 4/2) moist;

moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores and many fine and medium interstitial pores; slightly effervescent; strongly alkaline; abrupt smooth boundary.

Btnz—6 to 13 inches; pale olive (5Y 6/3) silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium and coarse prismatic structure parting to strong fine and medium subangular blocky; very hard, firm, sticky and very plastic; few very fine and fine roots; few fine tubular pores; common distinct clay films that are light yellowish brown (2.5Y 6/4) when dry on faces of peds and lining pores; 5 percent coarse and very coarse sand-sized volcanic ash; slightly effervescent; very strongly alkaline; clear smooth boundary.

Bk1—13 to 18 inches; light gray (5Y 7/2) silty clay loam, olive (5Y 4/3) moist; moderate fine and medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine roots; few coarse tubular pores; common fine irregular soft masses of secondary carbonates throughout matrix; 2 percent coarse and very coarse sand-sized volcanic ash; violently effervescent; very strongly alkaline; gradual wavy boundary.

Bk2—18 to 27 inches; light gray (5Y 7/2) silty clay loam, olive gray (5Y 4/2) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine and medium tubular pores; common fine irregular soft masses of secondary carbonates throughout matrix; violently effervescent; strongly alkaline; clear wavy boundary.

2C—27 to 60 inches; light gray (5Y 7/1) silty clay loam, dark gray (5Y 4/1) moist; massive, varved; very hard, friable, moderately sticky and moderately plastic; common medium tubular pores; disseminated carbonates throughout matrix; strongly effervescent; strongly alkaline.

The particle-size control section has 35 to 55 percent clay and less than 15 percent fine sand or coarser. Depth to the natric horizon (Btnz horizon) is 2 to 6 inches. Ponding is rare in winter and spring.

The E horizon has hue of 5Y, 10YR, or 2.5Y and value of 6 or 7 dry and 4 or 5 moist. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio (SAR) is 10 to 20.

The Btnz horizon has hue of 5Y, 10YR, or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 2 or 3 dry or moist. The sodium absorption ratio (SAR) is 15 to 30 throughout. It is silty clay loam or silty clay.

The Bk and C horizons have hue of 5Y, 10YR, or 2.5Y, value of 6 to 8 dry and 4 to 6 moist, and chroma of 1 to 3 dry or moist. The sodium adsorption ratio (SAR) is 10 to 30. These horizons are silty clay loam or silty clay.

Leidl Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Mountains
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 3 to 30 percent
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 75 to 120 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Leidl ashy loam in an area of Leidl-Stemilt complex, 15 to 30 percent slopes, about 6 miles southwest of Waterville; about 1,800 feet west and 500 feet north of the southeast corner of sec. 13, T. 24 N., R. 21 E. (lat. 47°34'55" N., long. 120°08'50" W.)

A—0 to 8 inches; gray (10YR 5/1) ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; common very fine to coarse roots; many fine interstitial pores; 5 percent gravel; neutral; gradual wavy boundary.

AB—8 to 18 inches; brown (10YR 5/3) ashy loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; common very fine to coarse roots; common fine and very fine interstitial pores; 5 percent gravel; neutral; gradual wavy boundary.

2Bt1—18 to 27 inches; brown (10YR 5/3) very cobbly clay loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine to medium roots; common fine tubular pores; few faint discontinuous clay films on faces of peds and lining pores and few faint discontinuous clay films that are brown (10YR 5/3) when dry on rock fragments; 15 percent gravel and 20 percent cobbles; neutral; gradual wavy boundary.

2Bt2—27 to 38 inches; yellowish brown (10YR 5/6) extremely cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; few very fine to medium roots; common fine tubular pores; common distinct clay films on faces of peds and lining pores and many distinct continuous clay films that are yellowish brown (10YR 5/6) when dry on rock fragments; 20 percent gravel, 40 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

2R—38 inches; basalt.

The mollic epipedon is 7 to 16 inches thick. The volcanic ash influence is 7 to 18 inches thick. The particle-size control section has 18 to 30 percent clay and averages 35 to 60 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 1 or 2 dry and 2 or 3 moist.

The AB horizon has chroma of 2 or 3 dry and 1, 2, or 3 moist.

The 2Bt horizon has value of 5 or 6 dry and 3 or 4 moist. It is extremely cobbly, very cobbly, extremely gravelly, or very gravelly clay loam.

Lickskillet Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Glaciated and nonglaciated plateaus
Parent material: Colluvium and residuum derived from basalt
Slope range: 0 to 65 percent
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 9 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls

Typical pedon of Lickskillet very cobbly loam, 15 to 35 percent slopes, about 2 miles north of Trinidad; about 1,000 feet west and 200 feet north of the southeast corner of sec. 36, T. 21 N., R. 22 E. (lat. 47°16'15" N., long. 120°00'25" W.)

A—0 to 5 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish

brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 20 percent gravel and 15 percent cobbles; neutral; clear wavy boundary.

Bw1—5 to 9 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; common fine and very fine interstitial pores; 40 percent gravel and 5 percent cobbles; slightly alkaline; gradual wavy boundary.

Bw2—9 to 14 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 45 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.

R—14 inches; basalt.

The mollic epipedon is 7 to 15 inches thick. The particle-size control section has 35 to 60 percent rock fragments, dominantly gravel. Depth to bedrock is 12 to 20 inches.

The A horizon has value of 2 or 3 moist and chroma of 2 or 3 dry or moist. It is very cobbly loam or very stony fine sandy loam.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 3 or 4 dry and 2 to 4 moist. It is very gravelly silt loam or very gravelly loam. It is neutral or slightly alkaline.

The Lickskillet soils in glaciated areas of the survey area are outside the range of characteristics of the Lickskillet series because they formed in glacial till and residuum and colluvium derived from basalt and commonly have a lower content of clay. These differences, however, do not significantly affect use, management, or interpretations.

Logy Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Fans
Parent material: Alluvium and colluvium
Slope range: 3 to 30 percent
Elevation: 750 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 190 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Torrifluventic Haploxerolls

Typical pedon of Logy cobbly sandy loam, 3 to 15 percent slopes, about 2 miles north of Orondo; near the center of sec. 21, T. 25 N., R. 21 E. (lat. 47°38’50” N., long. 120°12’30” W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, and medium roots; common fine interstitial pores; 10 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

Bw1—10 to 21 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common fine and

medium interstitial pores; 35 percent gravel and 10 percent cobbles; neutral; gradual wavy boundary.

Bw2—21 to 28 inches; yellowish brown (10YR 5/4) very gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; 40 percent gravel and 10 percent cobbles; slightly alkaline; clear wavy boundary.

C—28 to 60 inches; yellowish brown (10YR 5/4) stratified very gravelly sand, coarse sand, and gravelly sandy loam, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 40 percent gravel and 10 percent cobbles; slightly alkaline.

The mollic epipedon is 10 to 16 inches thick. Depth to the C horizon is 20 to 40 inches. The particle-size control section averages 5 to 10 percent clay and has 35 to 80 percent rock fragments.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 3 dry and 1 or 2 moist. It is cobbly sandy loam or very stony sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 1 to 3 dry or 2 or 3 moist. It is very gravelly or extremely gravelly sandy loam. It is neutral or slightly alkaline.

The C horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It is stratified extremely gravelly coarse sand to gravelly sandy loam.

Lorena Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Mountains and nonglaciated plateaus
Parent material: Loess over residuum derived from basalt
Slope range: 3 to 65 percent
Elevation: 2,800 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Ultic Argixerolls

Typical pedon of Lorena silt loam in an area of Lorena-Broadax complex, 3 to 15 percent slopes, about 9 miles southwest of Waterville; about 1,000 feet west of the center of sec. 26, T. 24 N., R. 21 E. (lat. 47°32'40" N., long. 120°09'50" W.)

A1—0 to 6 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine and medium interstitial pores; neutral; clear wavy boundary.

A2—6 to 13 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate coarse subangular blocky; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common fine interstitial pores; neutral; clear wavy boundary.

Bt1—13 to 22 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; strong very coarse and coarse prismatic structure; very hard, very firm, moderately sticky and moderately plastic; common very fine roots; common fine and medium interstitial and tubular pores; many distinct clay films on faces of peds; neutral; gradual wavy boundary.

Bt2—22 to 26 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR

3/4) moist; strong medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; common distinct clay films on faces of peds; slightly alkaline; abrupt wavy boundary.

2R—26 inches; basalt.

The mollic epipedon is 11 to 16 inches thick. The particle-size control section has 18 to 30 percent clay and more than 15 percent fine sand or coarser. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is slightly acid or neutral.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is clay loam, loam, or silt loam and has 0 to 15 percent rock fragments. It is neutral or slightly alkaline.

Magallon Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Terraces
Parent material: Loess mixed with sandy glacial outwash
Slope range: 3 to 15 percent
Elevation: 700 to 1,500 feet
Mean annual precipitation: 9 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Sandy, mixed, mesic Aridic Haploxerolls

Typical pedon of Magallon fine sandy loam, 3 to 8 percent slopes, about 1 mile northwest of Rock Island; about 1,700 feet north and 1,300 west of the southeast corner of sec. 14, T. 22 N., R. 21 E. (lat. 47°23’47” N., long. 120°09’29" W.)

Ap—0 to 10 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to weak medium granular; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few very fine and fine interstitial and tubular pores; slightly alkaline; gradual smooth boundary.

Bw—10 to 19 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; few very fine and fine interstitial and tubular pores; slightly alkaline; clear wavy boundary.

C1—19 to 24 inches; light yellowish brown (10YR 6/4) loamy fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic, few very fine and fine roots; few fine interstitial pores; slightly alkaline; clear wavy boundary.

C2—24 to 60 inches; light yellowish brown (10YR 6/4) fine sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; slightly alkaline.

The mollic epipedon is 7 to 10 inches thick. The solum is 14 to 25 inches thick.

The Ap horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is sandy loam or fine sandy loam and may have as much as 10 percent rock fragments.

The C horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry

and 2 or 3 moist. It is loamy fine sand or loamy sand in the upper part and coarse to fine sand in the lower part. It may have as much as 15 percent rock fragments.

Malaga Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Terraces
Parent material: Loess mixed with gravelly glacial outwash
Slope range: 0 to 8 percent
Elevation: 600 to 1,100 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 195 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical pedon of Malaga gravelly fine sandy loam, 0 to 8 percent slopes, about 2 miles northwest of Rock Island; about 400 feet west and 200 feet south of the northeast corner of sec. 27, T. 22 N., R. 21 E. (lat. 47°22'35" N., long. 120°10'40" W.)

Ap—0 to 4 inches; brown (10YR 5/3) gravelly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; few fine tubular and interstitial pores; 15 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.

Bw1—4 to 12 inches; brown (7.5YR 4/4) gravelly fine sandy loam, brown (7.5YR 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few medium and coarse tubular and vesicular pores; 25 percent gravel and 5 percent cobbles; slightly alkaline; gradual wavy boundary.

Bw2—12 to 28 inches; brown (7.5YR 5/4) extremely gravelly fine sandy loam, brown (7.5YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; few fine interstitial and tubular pores; 65 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.

2C—28 to 60 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; 80 percent gravel, 10 percent cobbles, and 2 percent stones; neutral.

Thickness of the solum and depth to the 2C horizon are 14 to 28 inches. The particle-size control section averages 50 to 85 percent rock fragments.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry, and chroma of 3 or 4 dry and 2 or 3 moist. It has 15 to 35 percent rock fragments.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 3 or 4 dry and 2 to 4 moist. It is gravelly or extremely gravelly fine sandy loam, sandy loam, or loam.

The 2C horizon is multicolored very gravelly, very cobbly, or extremely gravelly coarse sand, sand, or loamy sand.

McCue Series

Soil depth: Deep
Drainage class: Well drained

Landform: Nonglaciated plateaus
Parent material: Loess over older loess over a duripan
Slope range: 3 to 30 percent
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine, smectitic, mesic Mollic Palexeralfs

Typical pedon of McCue silt loam in an area of McCue-Broadax-Mondovi complex, 3 to 15 percent slopes, about 1.5 miles southwest of Waterville; about 1,050 feet west and 75 feet south of the northeast corner of sec. 32, T. 25 N., R. 22 E. (lat. 47°37'37" N., long. 120°05'45" W.)

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores and common very fine interstitial pores; slightly acid; abrupt wavy boundary.

2Bt1—7 to 13 inches; dark yellowish brown (10YR 4/4) silty clay, dark brown (10YR 3/3) moist; strong coarse prismatic structure; hard, very firm, moderately sticky and very plastic; common very fine roots; common very fine tubular pores; many prominent clay films that are brown (7.5YR 4/4) when dry on faces of peds and lining pores; common distinct organic matter stains that are brown (10YR 5/3) when dry on faces of peds; neutral; clear wavy boundary.

2Bt2—13 to 22 inches; yellowish brown (10YR 5/4) silty clay loam, dark brown (10YR 4/3) moist; strong medium prismatic structure; hard, firm, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; many distinct clay films on faces of peds and lining pores; common distinct organic matter stains that are brown (10YR 5/3) when dry on faces of peds; neutral; gradual wavy boundary.

2Bt3—22 to 42 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; hard, friable, slightly sticky and plastic; common very fine and fine roots; many very fine tubular pores and few very fine interstitial pores; common distinct clay films on faces of peds and lining pores; neutral; abrupt wavy boundary.

3Bqm—42 to 60 inches; very pale brown (10YR 7/4) moderately cemented duripan, dark yellowish brown (10YR 4/4) moist; common faint clay films on the surface of pan fragments; common distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on the surface of pan fragments and cicada casts; many medium tubular very hard cicada casts throughout horizon; neutral.

Depth to the duripan is 40 to 60 inches. Depth to the 2Bt horizon is 4 to 7 inches.

The Ap horizon has chroma of 2 or 3 dry or moist. It is slightly acid or neutral.

The 2Bt1 and 2Bt2 horizons have value of 4 or 5 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. They are silty clay loam, clay loam, silty clay, or clay.

The 2Bt3 horizon has value of 4 to 6 dry and 4 or 5 moist and chroma of 3 or 4 moist. It is silt loam, silty clay loam, or clay loam. It is neutral or slightly alkaline.

The 3Bqm horizon has value of 5 to 7 dry and 4 to 6 moist and chroma of 4 to 6 dry or moist. It is weakly cemented or moderately cemented with silica or carbonates with silica.

Mondovi Series

Soil depth: Very deep
Drainage class: Well drained

Landform: Drainageways of nonglaciated plateaus
Parent material: Silty alluvium
Slope range: 0 to 5 percent
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Cumulic Haploxerolls

Typical pedon of Mondovi silt loam in an area of McCue-Broadax-Mondovi complex, 3 to 15 percent slopes, about 1.5 miles southwest of Waterville; about 80 feet south and 400 feet west of the northeast corner of sec. 32, T. 25 N., R. 22 E. (lat. 47°37'36" N., long. 120°06'05" W.)

Ap—0 to 12 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and medium roots; few very fine interstitial pores; neutral; clear smooth boundary.
A1—12 to 20 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; neutral; abrupt wavy boundary.
A2—20 to 42 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; neutral; clear wavy boundary.
Bw—42 to 60 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine interstitial pores; slightly alkaline.

The mollic epipedon is more than 40 inches thick and can extend to a depth of 60 inches or more. The particle-size control section has less than 15 percent fine sand or coarser and typically is silt loam. Thin strata of loamy sand are in some pedons. Flooding is rare in winter and spring.

The Ap horizon has value of 4 or 5 dry and chroma of 1 or 2 moist or dry. It is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 or 2 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 2 to 5 dry or moist and chroma of 1 to 3 dry or moist.

Morrow Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess over basalt
Slope range: 0 to 30 percent
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Calcic Argixerolls

Typical pedon of Morrow silt loam in an area of Broadax-Morrow-Spofford complex,

3 to 8 percent slopes, about 10 miles northwest of East Wenatchee; about 1,200 feet north and 1,000 feet south of the southwest corner of sec. 19, T. 23 N., R. 22 E. (lat. 47°27'55" N., long. 120°07'52" W.)

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; few medium interstitial pores; neutral; clear smooth boundary.

A—9 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, very firm, slightly sticky and slightly plastic; common very fine and fine roots; common fine interstitial and tubular pores; neutral; clear smooth boundary.

2Bt—15 to 26 inches; yellowish brown (10YR 5/4) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common fine and medium interstitial and tubular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline; gradual wavy boundary.

2Btk—26 to 34 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and medium interstitial and tubular pores; few faint clay films on faces of peds; common distinct discontinuous coatings of secondary carbonates on faces of peds; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3R—34 inches; basalt.

The mollic epipedon is 9 to 16 inches thick. Depth to secondary carbonates is 10 to 26 inches. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry.

The 2Bt horizon has value of 4 or 5 dry and 2 to 4 moist and chroma of 2 to 4 dry or moist. It is silt loam or silty clay loam. It is neutral to moderately alkaline.

The 2Btk horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is silt loam or silty clay loam. It has secondary carbonates and is strongly effervescent or violently effervescent. It is moderately alkaline or strongly alkaline.

Nemire Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Drainageways and depressions of glaciated and nonglaciated plateaus
Parent material: Loess and volcanic ash over outwash, old alluvium, or glaciolacustrine deposits
Slope range: 0 to 15 percent
Elevation: 1,200 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Haploxerolls

Typical pedon of Nemire ashy fine sandy loam in an area of Dougville-Norax-Nemire complex, 0 to 25 percent slopes, about 6 miles north of Waterville; about 100 feet south and 150 feet west of the northeast corner of sec. 28, T. 26 N., R. 22 E. (lat. 47°43'45" N., long. 120°04'12" W.)

Ap—0 to 9 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; weak coarse granular structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many fine interstitial pores; 5 percent

coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

A—9 to 16 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many fine and very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

AB—16 to 23 inches; gray (10YR 5/1) ashy fine sandy loam, dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

BA—23 to 37 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

Bw—37 to 47 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; many very fine and fine interstitial pores; 30 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt wavy boundary.

2BC—47 to 60 inches; light gray (10YR 7/2) silt loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and very fine tubular pores; few fine redoximorphic concentrations that are yellowish red (5YR 5/6) when moist throughout horizon; slightly alkaline.

The mollic epipedon is 20 to 55 inches thick and has an irregular decrease in organic matter content as depth increases. Thickness of the volcanic ash influence is 40 to 60 inches. Depth to redoximorphic concentrations that have high chroma is 40 inches or more.

The A horizon has value of 2 or 3 moist and chroma of 2 or 3 dry or moist.

The AB horizon has chroma of 1 to 3 dry and 2 or 3 moist. It is ashy fine sandy loam or ashy sandy loam.

The BA and Bw horizons have value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry and 2 or 3 moist. They are ashy fine sandy loam, ashy sandy loam, ashy silt loam, or ashy loam.

The 2BC horizon has hue of 10YR, 2.5Y, and 5Y, value of 6 or 7 dry and 3 to 5 moist, and chroma of 1 to 4 dry and 3 or 4 moist. It is silt loam, loam, fine sandy loam, loamy sand, fine sand, or gravelly fine sandy loam and may be stratified. It is neutral or slightly alkaline.

Nespelem Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Terraces on glaciated plateaus
Parent material: Loess over a duripan over glaciolacustrine deposits
Slope range: 0 to 15 percent
Elevation: 2,200 to 3,000 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 170 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Haplic Durixerolls

Typical pedon of Nespelem very fine sandy loam in an area of Nespelem-Nemire complex, 0 to 8 percent slopes, about 1 mile northeast of Wilson Butte; about 1,300 feet south and 800 feet west of the northeast corner of sec. 10, T. 29 N., R. 29 E. (lat. 48°01'51" N., long. 119°08'59" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores and few fine tubular pores; neutral; clear wavy boundary.

Bw—10 to 20 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; neutral; abrupt wavy boundary.

Bt—20 to 27 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; few faint clay films on faces of peds; neutral; abrupt wavy boundary.

2Bkqm—27 to 31 inches; pale yellow (2.5Y 7/3) weakly cemented duripan that crushes to silt loam, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; common distinct clay films that are yellow (2.5Y 7/6) when dry on surface of fractures and lining pores; many distinct continuous very pale brown (10YR 8/2) coatings of secondary carbonates and silica on surface of duripan and fractures; moderately alkaline; violently effervescent; clear wavy boundary.

2Bk—31 to 60 inches; light gray (5Y 7/1) silt loam, light brownish gray (2.5Y 6/2) moist; massive, laminated; hard, friable, moderately sticky and moderately plastic; few very fine tubular pores; few distinct clay films that are brownish yellow (10YR 6/6) when dry lining pores near top of horizon; common fine filaments of secondary carbonates filling or lining pores; few fine redoximorphic concentrations that are dark yellowish brown (10YR 3/4) when moist on horizontal laminations; slightly alkaline.

The mollic epipedon is 9 to 12 inches thick. The particle-size control section has less than 15 percent fine sand or coarser. Depth to secondary carbonates is 18 to 30 inches. Depth to the duripan is 20 to 40 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is fine sandy loam or very fine sandy loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist.

The 2Bkqm horizon has hue of 2.5Y or 10YR, value of 6 or 7 dry and 3 or 4 moist, and chroma of 2 to 4 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica.

The 2Bk horizon has hue of 2.5Y or 5Y, value of 6 or 7 dry and 4 or 5 moist, and chroma of 1 to 4 dry or moist. It is stratified silt loam, very fine sandy loam, or silty clay loam.

The Nespelem soils in this survey area are a taxadjunct to the Nespelem series. These Nespelem soils have a weak argillic horizon above the duripan. This difference, however, does not significantly affect the use, management, or interpretations.

Norax Series

Soil depth: Deep
Drainage class: Well drained
Landform: South aspects of nonglaciated plateaus
Parent material: Loess over older loess over a duripan
Slope range: 3 to 30 percent
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Haploxeralfs

Typical pedon of Norax silt loam in an area of McCue-Broadax complex, 15 to 30 percent slopes, about 3 miles west and 1 mile north of Waterville; about 2,100 feet south and 800 feet east of the northwest corner of sec. 13, T. 25 N., R. 21 E. (lat. 47°39'55" N., long. 120°09'04" W.)

Ap—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine interstitial and tubular pores; neutral; clear smooth boundary.

2Bt1—4 to 9 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; few fine interstitial and tubular pores; common distinct clay films on faces of peds and lining pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt2—9 to 22 inches; yellowish brown (10YR 5/4) silty clay loam, brown (10YR 4/3) moist; strong coarse prismatic structure parting to strong coarse subangular blocky; very hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; many distinct clay films on faces of peds and lining pores; common distinct skeletans on faces of peds; slightly alkaline; clear smooth boundary.

2Bt3—22 to 34 inches; yellowish brown (10YR 5/4) silty clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium tubular pores; many distinct clay films on faces of peds; common fine irregular soft masses of disintegrating pumice that is white (10YR 8/1) when dry on faces of peds and lining pores, noneffervescent; very few distinct coatings of secondary carbonates on faces of peds and lining pores, strongly effervescent; few distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on faces of peds; slightly alkaline; clear smooth boundary.

2Btk—34 to 54 inches; yellowish brown (10YR 5/4) loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few fine tubular pores; common faint and few distinct clay films on faces of peds; common fine filaments of secondary carbonates lining pores and common distinct coatings of secondary carbonates on faces of peds; few distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on faces of peds; 25 percent coarse and very coarse sand-sized volcanic ash; 10 percent durinodes; 12 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3Bqm—54 to 60 inches; yellowish brown (10YR 5/4) weakly cemented duripan that crushes to gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; very hard, firm, slightly sticky and slightly plastic; few fine tubular pores; 15 percent pebble-sized duripan fragments; slightly alkaline.

Depth to the 2Bt horizon is 4 to 8 inches. The particle-size control section averages 27 to 35 percent clay and less than 15 percent fine sand or coarser. Depth to secondary carbonates is 26 to 43 inches. Depth to the duripan is 40 to 60 inches.

The A horizon has chroma of 2 to 4 moist.

The 2Bt horizon has value of 4 or 5 dry and chroma of 3 or 4 dry or moist. It is silty clay loam or clay loam. It is neutral or slightly alkaline.

The 2Btk horizon has value of 5 to 7 dry and chroma of 3 or 4 dry or moist. It is silt loam or loam. It is slightly alkaline or moderately alkaline.

The 3Bqm horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 3 or 4 dry or moist. It is weakly cemented or moderately cemented with silica or with carbonates and silica. It crushes to gravelly sandy loam, gravelly loam, very gravelly silt loam, or very gravelly fine sandy loam.

Nyssaton Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Glaciolacustrine deposits
Slope range: 15 to 65 percent
Elevation: 1,000 to 2,100 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Nyssaton silt loam in an area of Ellisforde-DelRio-Nyssaton complex, 30 to 65 percent slopes, about 4 miles south-southeast of Bridgeport; about 760 feet south and 1,600 feet east of the northwest corner of sec. 12, T. 28 N., R. 25 E. (lat. 47°56'39" N., long. 119°38'04" W.)

A1—0 to 4 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate fine and medium subangular blocky structure parting to moderate thin platy; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores and common very fine and fine interstitial pores; 2 percent gravel; slightly alkaline; abrupt smooth boundary.

A2—4 to 9 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine to coarse tubular pores; 1 percent gravel and 2 percent cobbles; slightly alkaline; abrupt wavy boundary.

Bkq1—9 to 19 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; moderate medium subangular blocky structure parting to weak fine subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine to coarse tubular pores; common medium and coarse durinodes throughout matrix; common fine filaments of secondary carbonates in pores; 1 percent gravel and 1 percent cobbles; violently effervescent; moderately alkaline; clear smooth boundary.

2Bkq2—19 to 29 inches; light gray (2.5Y 7/2) silt loam, 55 percent light brownish gray

(2.5Y 6/2) and 45 percent dark grayish brown (2.5Y 4/2) moist; weak coarse and very coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; common medium and coarse durinodes throughout matrix; common fine filaments of secondary carbonates in pores and common fine irregular soft masses of secondary carbonates throughout matrix; common fine and coarse platelike redoximorphic concentrations that are dark yellowish brown (10YR 4/6) when moist at top of horizon; 1 percent gravel and 1 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bq—29 to 33 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive with very weak laminations 2 to 3 millimeters thick; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few very fine and fine tubular pores; common medium and coarse durinodes throughout horizon; disseminated carbonates; 1 percent gravel and 1 percent cobbles; common fine and coarse platelike redoximorphic concentrations that are dark yellowish brown (10Y 4/6) when moist at top of horizon and common fine cylindrical redoximorphic concentrations that are dark yellowish brown (10YR 3/6) when moist in pores throughout horizon; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2C1—33 to 45 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive with very weak laminations 2 to 3 millimeters thick; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine tubular pores; disseminated carbonates; common fine and coarse platelike redoximorphic concentrations that are dark yellowish brown (10YR 4/6) when moist at top of horizon; 1 percent gravel and 1 percent cobbles; strongly effervescent; moderately alkaline; clear smooth boundary.

2C2—45 to 60 inches; light gray (5Y 7/1) silt loam, olive gray (5Y 4/2) moist; massive with weak laminations 1/8 to 1/2 inch thick; hard, friable, slightly sticky and slightly plastic; disseminated carbonates; common fine irregular redoximorphic concentrations that are dark yellowish brown (10YR 4/6) when moist throughout horizon; slightly effervescent; strongly alkaline.

The particle-size control section has 8 to 18 percent clay and less than 15 percent fine sand or coarser. Depth to laminated glaciolacustrine sediment is 20 to 40 inches. Depth to secondary carbonates is 6 to 10 inches.

The A horizon has hue of 10YR or 2.5Y.

The Bkq and 2Bkq horizons have value of 6, 7, or 8 dry and 4, 5, or 6 moist. They have 0 to 5 percent rock fragments and 2 to 15 percent durinodes. The calcium carbonate equivalent is 3 to 15 percent.

The 2Bq horizon has value of 4 or 5 moist. It has 0 to 5 percent rock fragments and 2 to 10 percent durinodes. It is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 3 to 15 percent.

The 2C horizon has hue of 2.5Y or 5Y, value of 4 or 5 moist, and chroma of 1 or 2 dry. It has 0 to 5 percent rock fragments. It is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 3 to 15 percent.

The Nyssaton soils in this survey area are a taxadjunct to the Nyssaton series. These Nyssaton soils do not have a calcic horizon and are classified as Haplocambids.

Pateros Series

Soil depth: Very deep
Drainage class: Well drained
Landform: North aspects of scarp slopes of plateaus

Parent material: Volcanic ash and colluvium derived from granite
Slope range: 25 to 70 percent
Elevation: 1,000 to 3,000 feet
Mean annual precipitation: 15 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 110 to 150 days

Taxonomic classification: Ashy-skeletal, glassy, mesic Vitrandic Xerochrepts

Typical pedon of Pateros cobbly ashy loam in an area of Pateros-Rock outcrop complex, 25 to 70 percent slopes, about 1.5 miles southwest of Brewster; about 1,800 feet west and 1,500 feet north of the southeast corner of sec. 24, T. 30 N., R. 24 E. (lat. 48°03'05" N., long. 119°45'50" W.)

A—0 to 7 inches; gray (10YR 6/1) cobbly ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine interstitial and tubular pores; 10 percent granitic gravel, 20 percent granitic cobbles, and 3 percent granitic stones; neutral; gradual wavy boundary.
Bw—7 to 18 inches; light gray (10YR 7/2) very cobbly ashy loam, dark grayish brown (10YR 4/2) moist; weak medium granular structure; loose, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 20 percent granitic gravel, 25 percent granitic cobbles, and 10 percent granitic stones; slightly alkaline; gradual wavy boundary.
C1—18 to 30 inches; white (10YR 8/2) extremely cobbly ashy fine sandy loam, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots matted around stones; few fine and medium interstitial pores; 20 percent granitic gravel, 40 percent granitic cobbles, and 5 percent granitic stones; slightly alkaline; gradual wavy boundary.
C2—30 to 60 inches; white (10YR 8/2) extremely cobbly ashy fine sandy loam, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots matted around stones; few fine and medium interstitial pores; 20 percent granitic gravel, 40 percent granitic cobbles, and 15 percent granitic stones; neutral.

Thickness of the volcanic ash influence is more than 40 inches. The particle-size control section has 35 to 75 percent rock fragments.

The A horizon has value of 5 or 6 dry and chroma of 1 or 2 dry or moist.

The Bw horizon has value of 6 or 7 dry and 4 or 5 moist and chroma of 1 or 2 dry or moist. It has 50 to 65 percent rock fragments. The fine-earth fraction is ashy fine sandy loam or ashy loam. The horizon is neutral or slightly alkaline.

The C horizon has value of 6 to 8 dry and 4 to 6 moist and chroma of 1 or 2 dry and 2 or 3 moist. It has 55 to 75 percent rock fragments. It is neutral or slightly alkaline.

Peshastin Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess mixed with glacial outwash and ablation till
Slope range: 3 to 60 percent
Elevation: 800 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Peshastin fine sandy loam, 8 to 15 percent slopes, about 3 miles northwest of Wilson Butte; about 2,400 feet east and 500 feet north of the southwest corner of sec. 33, T. 30 N., R. 29 E. (lat. 48°03'01" N., long. 119°10'49" W.)

Ap—0 to 12 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common coarse vesicular pores; 5 percent gravel; neutral; clear wavy boundary.

Bw—12 to 22 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few medium vesicular pores; 25 percent gravel and 10 percent cobbles; slightly alkaline; gradual wavy boundary.

Bk—22 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; few medium vesicular pores; 40 percent gravel, 20 percent cobbles, and 10 percent stones; common distinct coatings of secondary carbonates and silica that are white (2.5Y 8/1) when dry on underside of rock fragments; strongly effervescent; slightly alkaline.

The mollic epipedon is 9 to 12 inches thick. The particle-size control section averages 35 to 75 percent rock fragments. Depth to secondary carbonates is 15 to 25 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is fine sandy loam or stony fine sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is very gravelly sandy loam, cobbly sandy loam, loam, or gravelly loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 to 7 dry and 4 or 5 moist and chroma of 2 to 4 dry or moist. It is extremely gravelly coarse sandy loam, extremely gravelly sandy loam, extremely gravelly loam, or extremely cobbly sandy loam. It has 2 to 5 percent calcium carbonate equivalent.

In the Peshastin soils that have a compact substratum, the horizon has a moist bulk density of 1.40 to 1.60 grams per cubic centimeter.

Pogue Series

Soil depth: Very deep
Drainage class: Somewhat excessive drained
Landform: Terraces
Parent material: Loess over glacial outwash
Slope range: 0 to 65 percent
Elevation: 600 to 1,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Pogue fine sandy loam, 3 to 8 percent slopes, near the confluence of China Creek and the Columbia River; about 1,000 feet east and 1,400

feet north of the southwest corner of sec. 4, T. 30 N., R. 29 E. (lat. 48°07'21" N., long. 119°11'18" W.)

Ap—0 to 9 inches; brown (10YR 5/3) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 5 percent gravel; neutral; gradual wavy boundary.
Bw—9 to 24 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine and very fine interstitial and tubular pores; 10 percent gravel; neutral; gradual wavy boundary.
2C—24 to 60 inches; multicolored very gravelly sand; single grain; loose, nonsticky and nonplastic; 30 percent gravel and 10 percent cobbles; neutral.

The mollic epipedon is 9 to 13 inches thick. Depth to the 2C horizon is 20 to 35 inches.

The Ap horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is fine sandy loam, loam, or gravelly, cobbly, bouldery, or extremely stony fine sandy loam.

The Bw horizon has value of 5 or 6 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is gravelly or cobbly sandy loam, fine sandy loam, or very fine sandy loam.

The 2C horizon is multicolored. It is very gravelly or very cobbly sand or loamy sand.

Prosser Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over basalt
Slope range: 15 to 45 percent
Elevation: 1,200 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Prosser very fine sandy loam, 15 to 45 percent slopes, in an area of Prosser-Starbuck complex, 15 to 45 percent slopes, about 2.5 miles northwest of Royal City; about 200 feet south and 1,500 feet west of the northeast corner of sec. 22, T. 17 N., R. 25 E. (lat. 46°57'25" N., long. 119°40'08" W.)

A—0 to 5 inches; brown (10YR 5/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; few very fine tubular pores; neutral; clear wavy boundary.
Bw—5 to 16 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; slightly alkaline; clear wavy boundary.
Bk—16 to 26 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common spheroidal aggregates of secondary carbonates; strongly effervescent; moderately alkaline; abrupt smooth boundary.
2R—26 inches; basalt.

Depth to secondary carbonates is 10 to 24 inches. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 3 or 4 moist and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry. It is very fine sandy loam or silt loam.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam or silt loam. The calcium carbonate equivalent is 1 to 5 percent.

Quincy Series

Soil depth: Very deep
Drainage class: Excessively drained
Landform: Terraces, kames, and terraces on glaciated plateaus
Parent material: Eolian sand
Slope range: 0 to 60 percent
Elevation: 600 to 2,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 195 days

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical pedon of Quincy loamy fine sand, 0 to 15 percent slopes, about 3.5 miles northwest of East Wenatchee; about 1,900 feet west of the southeast corner of sec. 22, T. 23 N., R. 20 E. (lat. 47°27'50" N., long. 120°18'25" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; slightly alkaline; clear smooth boundary.

C—10 to 60 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common very fine roots to a depth of 30 inches and few very fine roots between depths of 30 and 48 inches; few fine vesicular pores; slightly alkaline.

The Ap horizon has less than 1 percent organic matter. It has value of 4 to 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It may have as much as 10 percent gravel. It is fine sand or loamy fine sand.

The C horizon has hue of 2.5Y or 10YR, value of 6 or 7 dry, and chroma of 2 or 3 dry or moist. It is fine sand or loamy fine sand and may be stratified with coarse sand. Below a depth of 40 inches, there may be layers of glacial outwash gravel.

Ralls Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 3 to 70 percent
Elevation: 1,300 to 3,300 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Aridic Argixerolls

Typical pedon of Ralls very cobbly silt loam in an area of Cheviot-Ralls-Rubble land complex, 30 to 65 percent slopes, about 3 miles south of Turtle Rock near the Columbia River; about 1,200 feet north and 1,200 feet east of the southwest corner of sec. 6, T. 23 N., R. 21 E. (lat. 47°30'45" N., long. 120°15'37" W.)

A—0 to 10 inches; grayish brown (10YR 5/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, nonsticky and slightly plastic; many fine and very fine roots; 15 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline; gradual smooth boundary.

Bt—10 to 20 inches; brown (10YR 4/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and very fine roots; few fine and very fine tubular pores; many distinct continuous clay films on faces of peds and many distinct clay films that are brown (10YR 5/3) when dry on rock fragments; 20 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.

BC—20 to 32 inches; yellowish brown (10YR 5/4) very gravelly silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few medium tubular pores; 25 percent gravel and 10 percent cobbles; slightly alkaline; gradual smooth boundary.

C—32 to 60 inches; yellowish brown (10YR 5/4) very gravelly silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common fine and medium tubular pores; 45 percent gravel and 10 percent cobbles; moderately alkaline.

The mollic epipedon is 10 to 20 inches thick. The particle-size control section has 18 to 35 percent clay and 15 to 35 percent rock fragments. Depth to bedrock is 40 to 60 inches or more.

The A horizon has value of 4 or 5 dry and 2 or 3 moist. It is neutral to moderately alkaline. It has 3 to 55 percent rock fragments. It is silt loam, very cobbly silt loam, or very cobbly loam.

The Bt and BC horizons have value of 4 or 5 dry and 3 or 4 moist and chroma of 3 or 4 dry and 2, 3, or 4 moist. They are gravelly clay loam, gravelly silt loam, silt loam, very gravelly silt loam, cobbly silt loam, cobbly clay loam, very cobbly loam, or very gravelly clay loam. They are slightly alkaline or moderately alkaline.

The C horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is very gravelly silt loam, very gravelly clay loam, or gravelly clay loam. It is moderately alkaline or strongly alkaline. Soft powdery segregated secondary carbonates are below a depth of 44 inches in some pedons.

Renshigh Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess
Slope range: 3 to 30 percent
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Haploxeralfs

Typical pedon of Renshigh silt loam in an area of Renshigh-Alstown-Renslow complex, 15 to 30 percent slopes, about 4 miles east of Rock Island; about 150 feet west and 200 feet north of the southeast corner of sec. 22, T. 22 N., R. 22 E. (lat. 47°22'41" N., long. 120°02'49" W.)

Ap—0 to 4 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine tubular pores and few very fine and fine interstitial pores; neutral; abrupt smooth boundary.

2Bt—4 to 21 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; strong coarse prismatic structure parting to strong medium prismatic and subangular blocky; hard, firm, slightly sticky and moderately plastic; common very fine roots; common very fine and few fine tubular pores and few very fine interstitial pores; few faint yellowish brown (10YR 5/6) clay films on faces of peds and few distinct clay films lining pores; many distinct stress surfaces on faces of peds; common faint skeletans on stress surfaces; common coarse tubular hard cicada casts orientated vertically in the horizon; neutral; abrupt wavy boundary.

2Btk1—21 to 36 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores and few very fine interstitial pores; few faint yellowish brown (10YR 5/6) clay films on faces of peds and lining pores; common distinct stress surfaces on faces of peds; common faint skeletans on stress surfaces; common fine filaments of secondary carbonates in pores, strongly effervescent; and few distinct coatings of secondary carbonates on faces of peds, violently effervescent; 6 percent calcium carbonate equivalent; very few distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on faces of peds; slightly alkaline; clear smooth boundary.

2Btk2—36 to 48 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/6) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores and few very fine interstitial pores; common faint yellowish brown (10YR 5/4) clay films on faces of peds and lining pores; few distinct stress surfaces on faces of peds; many fine filaments of secondary carbonates in pores, strongly effervescent; and common distinct coatings of secondary carbonates on faces of peds, violently effervescent; 5 percent calcium carbonate equivalent; very few distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on faces of peds; moderately alkaline; clear wavy boundary.

3Btk3—48 to 57 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; common very fine tubular pores and few very fine interstitial pores; few faint yellowish brown (10YR 5/6) clay films on faces of peds and lining pores; common fine filaments of calcium carbonate in pores, strongly effervescent; 5 percent calcium carbonate equivalent; few distinct discontinuous manganese stains that are black (2.5Y 2.5/1) when dry on faces of peds; moderately alkaline; clear wavy boundary.

3BC—57 to 60 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine tubular pores and few very fine interstitial pores; disseminated carbonates; slightly effervescent; 3 percent calcium carbonate equivalent; moderately alkaline.

Depth to the argillic horizon is 4 to 8 inches. Depth to secondary carbonates is 14 to 27 inches.

The Ap horizon has chroma of 3 or 4 dry.

The 2Bt horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 3 or 4 moist. It is neutral or slightly alkaline.

The 2Btk1 and 2Btk2 horizons have value of 4 or 5 dry and chroma of 3 or 4 moist. The calcium carbonate equivalent is 1 to 8 percent. The horizons are moderately alkaline or strongly alkaline.

The 3Btk3 horizon has value of 4, 5, or 6 dry and chroma of 3 or 4 moist. The calcium carbonate equivalent is 1 to 8 percent. The horizon is moderately alkaline or slightly alkaline.

The 3BC horizon has chroma of 3 or 4 moist. It is moderately alkaline or slightly alkaline. The calcium carbonate equivalent is 1 to 8 percent.

Renslow Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess or over a duripan
Slope range: 0 to 30 percent
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calciargidic Argixerolls

Typical pedon of Renslow silt loam, 0 to 8 percent slopes (fig. 23), about 6 miles southeast of Douglas; about 500 feet east and 50 feet south of the northwest corner of sec. 28, T. 24 N., R. 23 E. (lat. 47°33'11" N., long. 119°57'33" W.)

Ap—0 to 10 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores and few very fine interstitial pores; moderately acid; clear smooth boundary.

Bw—10 to 23 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; neutral; clear wavy boundary.

Bt1—23 to 28 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine tubular pores; few faint clay films on faces of peds; slightly alkaline; clear smooth boundary.

Bt2—28 to 34 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; few faint clay films on faces of peds and lining pores; slightly alkaline; clear smooth boundary.

Bt3—34 to 41 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few



Figure 23.—Profile of a Renslow silt loam. The duripan is at a depth of about 42 inches. Numerals on the tape are in feet.

very fine and fine roots; common very fine tubular pores; few faint clay films on faces of peds and lining pores; moderately alkaline; abrupt wavy boundary.

Bk1—41 to 52 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; many distinct coatings of secondary carbonates lining pores and few distinct coatings of secondary carbonates on faces of peds; strongly effervescent; strongly alkaline; clear wavy boundary.

Bk2—52 to 60 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; common distinct coatings of secondary carbonates on faces of peds and common fine filaments and fine and medium soft masses of secondary carbonates throughout the matrix; violently effervescent; strongly alkaline.

The mollic epipedon is 10 to 16 inches thick. Depth to secondary carbonates is 20 to 44 inches. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 3 or 4 moist and chroma of 3 or 4 dry.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry and 2 or 3 moist. It is neutral to moderately alkaline.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 to 4 dry and 3 or 4 moist. It is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 1 to 8 percent.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Ritzville Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess, or loess over a duripan
Slope range: 0 to 65 percent
Elevation: 1,400 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Ritzville silt loam, 3 to 8 percent slopes, about 2.5 miles northeast of East Wenatchee; about 2,500 feet west and 1,000 feet south of the northeast corner of sec. 31, T. 23 N., R. 21 E. (lat. 47°26'45" N., long. 120°14'55" W.)

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine, medium, and coarse subangular blocky structure; soft, friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; neutral; clear smooth boundary.

A—8 to 19 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; many very fine interstitial pores and few very fine tubular pores; slightly alkaline; clear wavy boundary.

Bw1—19 to 26 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular and interstitial pores; slightly alkaline; clear wavy boundary.

Bw2—26 to 40 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular and interstitial pores; slightly alkaline; clear wavy boundary.

Bk1—40 to 50 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores and few very fine interstitial pores; common fine filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on faces of peds; strongly effervescent; strongly alkaline; clear wavy boundary.

Bk2—50 to 56 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, nonsticky and

slightly plastic; few very fine roots; common very fine tubular pores and few very fine interstitial pores; common fine filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on faces of peds; strongly alkaline; strongly effervescent; clear wavy boundary.

Bk3—56 to 60 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky and slightly plastic; few very fine roots; common very fine interstitial pores and few very fine tubular pores; common fine filaments of secondary carbonates in pores and few distinct coatings of secondary carbonates in seams; violently effervescent; moderately alkaline.

The mollic epipedon, where present, is 10 to 20 inches thick. The particle-size control section has less than 15 percent fine sand or coarser. Depth to secondary carbonates is 30 to 44 inches. Where present, depth to the duripan is 40 to 60 inches.

The A horizon has chroma of 2 to 4 dry and 2 or 3 moist.

The Bw horizon has value of 5 or 6 dry and 3 to 5 moist and chroma of 3 or 4 dry or moist.

The Bk horizon has value of 4 to 6 dry and 4 or 5 moist and chroma of 2 to 4 dry or moist. The calcium carbonate equivalent is 1 to 15 percent.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

The Ritzville soils in detailed soil map units 295 and 296 are a taxadjunct to the Ritzville series. The soils in these map units do not have a mollic epipedon because of the low organic matter content. These soils are classified as Xeric Haplocambids.

Roloff Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Mounds on nonglaciated plateaus
Parent material: Loess over basalt
Slope range: 0 to 25 percent
Elevation: 1,300 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Roloff silt loam in an area of Roloff-Bakeoven complex, 5 to 25 percent slopes, about 5 miles northwest of Hartline; about 150 feet west and 30 feet south of the northeast corner of sec. 30, T. 26 N., R. 29 E (lat. 47°43’40” N., long. 119°12’46” W.)

A1—0 to 5 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and medium roots; many fine vesicular pores; neutral; abrupt smooth boundary.

A2—5 to 11 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many fine tubular pores; neutral; clear smooth boundary.

Bw1—11 to 17 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium prismatic structure; hard, friable, slightly sticky and slightly plastic; common fine roots; many fine tubular pores; slightly alkaline; abrupt wavy boundary.

Bw2—17 to 29 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; moderately alkaline; abrupt irregular boundary.
2R—29 inches; basalt.

The mollic epipedon is 9 to 12 inches thick. The particle-size control section has more than 15 percent fine sand or coarser and 0 to 15 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The A horizon has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and chroma of 2 to 4 dry or moist. It is silt loam or gravelly silt loam. It is slightly alkaline or moderately alkaline.

Roosevelt Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Residuum and colluvium derived from granite
Slope range: 0 to 65 percent
Elevation: 800 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls

Typical pedon of Roosevelt fine sandy loam in an area of Soaplake-Roosevelt-Rock outcrop complex, 0 to 30 percent slopes, about 2.5 miles northeast of Chief Joseph Dam; about 1,200 feet west of the center of sec. 17, T. 29 N., R. 26 E. (lat. 48°01'20" N., long. 119°35'42" W.)

A1—0 to 6 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many medium, fine, and very fine roots; common fine interstitial pores; 5 percent gravel; neutral; gradual wavy boundary.
A2—6 to 12 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine and medium interstitial pores; 10 percent gravel; neutral; gradual wavy boundary.
Bw1—12 to 20 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine interstitial pores; 15 percent gravel; slightly alkaline; gradual wavy boundary.
Bw2—20 to 26 inches; light yellowish brown (10YR 6/4) gravelly fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial and tubular pores; 20 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.
2R—26 inches; granite.

The mollic epipedon is 9 to 14 inches thick. The solum has 15 to 30 percent rock fragments. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It has 10 to 30 percent gravel and 0 to 10 percent cobbles.

Royal Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Alluvium
Slope range: 0 to 10 percent
Elevation: 900 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Royal loamy fine sand, 0 to 10 percent slopes, about 2 miles northeast of Warden; about 1,200 feet west and 1,500 feet north of the southeast corner of sec. 12, T. 17 N., R. 30 E. (lat. 46°58'26" N., long. 118°59'07" W.)

Ap—0 to 10 inches; brown (10YR 5/3) loamy fine sand, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; slightly alkaline; abrupt smooth boundary.
Bw—10 to 16 inches; brown (10YR 5/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; slightly alkaline; abrupt smooth boundary.
Bk1—16 to 31 inches; brown (10YR 5/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; many spheroidal aggregates of secondary carbonates; violently effervescent; moderately alkaline; clear smooth boundary.
Bk2—31 to 55 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; common spheroidal aggregates of secondary carbonates; violently effervescent; moderately alkaline; clear smooth boundary.
Bk3—55 to 60 inches; light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; common spheroidal aggregates of secondary carbonates; strongly effervescent; moderately alkaline.

Depth to secondary carbonates is 13 to 44 inches. The profile is neutral to strongly alkaline.

The Ap horizon has value of 5 or 6 dry and 3 to 5 moist and chroma of 2 or 3 dry or moist. It is loamy fine sand or very fine sandy loam.

The Bw horizon has value of 5 to 7 dry and 4 or 5 moist. It is very fine sandy loam or fine sandy loam.

The Bk horizon has value of 5 to 7 dry and 4 or 5 moist and chroma of 1 to 3 moist. It is stratified very fine sandy loam to fine sand. It is moderately alkaline or strongly alkaline. The calcium carbonate equivalent is 1 to 5 percent.

Sagehill Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces

Parent material: Loess over glaciolacustrine deposits
Slope range: 10 to 15 percent
Elevation: 800 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids

Typical pedon of Sagehill very fine sandy loam, 10 to 15 percent slopes, about 2 miles north of Warden; about 2,450 feet north and 2,200 feet east of the southwest corner of sec. 32, T. 18 N., R. 30 E. (lat. 47°00'20" N., long. 119°04'43" W.)

Ap—0 to 8 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; very weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine and fine interstitial pores; slightly alkaline; abrupt smooth boundary.
Bw—8 to 19 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak very coarse prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine and fine interstitial pores; slightly alkaline; abrupt wavy boundary.
Bk1—19 to 30 inches; pale brown (10YR 6/3) very fine sandy loam, grayish brown (2.5Y 5/2) moist; weak very coarse prismatic structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; few spheroidal aggregates of secondary carbonates; strongly effervescent; moderately alkaline; abrupt wavy boundary.
2Bk2—30 to 39 inches; light brownish gray (2.5Y 6/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; common very fine and fine interstitial pores; secondary carbonates in seams; violently effervescent; moderately alkaline; abrupt wavy boundary.
2Bk3—39 to 52 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; common aggregates of secondary carbonates; violently effervescent; strongly alkaline; abrupt smooth boundary.
2Bk4—52 to 60 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; few spheroidal aggregates of secondary carbonates; strongly effervescent; strongly alkaline.

Depth to secondary carbonates is 15 to 30 inches.

The Ap horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam, loamy very fine sand, or silt loam. It is neutral to moderately alkaline.

The Bk and 2Bk horizons have value of 6 or 7 dry and 4 or 5 moist. They are stratified silt loam, very fine sandy loam, or fine sandy loam. The calcium carbonate equivalent is 5 to 15 percent.

Sanbee Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Terraces and kames on glaciated plateaus

Parent material: Eolian sand or eolian sand and volcanic ash over glacial outwash
Slope range: 0 to 60 percent
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitrixerandic Haplocambids

Typical pedon of Sanbee ashy fine sandy loam, 0 to 8 percent slopes, about 5 miles northeast of Mansfield; about 2,150 feet west and 300 feet north of the southeast corner of sec. 3, T. 27 N., R. 26 E. (lat. 47°51'36" N., long. 119°32'30" W.)

Ap—0 to 7 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure parting to weak very thin platy; soft, very friable, nonsticky and slightly plastic; common very fine and fine and few medium roots; few very fine interstitial pores; 12 percent coarse and very coarse sand-sized volcanic ash; 8 percent gravel; neutral; clear wavy boundary.

Bw1—7 to 14 inches; brown (10YR 5/3) ashy sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; common fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.

Bw2—14 to 28 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few very fine roots; few very fine and fine tubular pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.

2BC—28 to 32 inches; yellowish brown (10YR 5/4) loamy sand, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; 8 percent gravel; neutral; clear wavy boundary.

2C1—32 to 37 inches; yellowish brown (10YR 5/4) loamy coarse sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, loose, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.

2C2—37 to 51 inches; pale brown (10YR 6/3) sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, loose, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel; neutral; gradual wavy boundary.

2C3—51 to 60 inches; multicolored sand that is very dark brown (10YR 2/2) when moist in matrix; single grain; soft, loose, nonsticky and nonplastic; 2 percent coarse and very coarse sand-sized volcanic ash; neutral.

The upper 7 to 10 inches of the profile has 0.5 to 1.0 percent organic matter content. Thickness of the volcanic ash influence is 14 to 37 inches. Depth to the sandy substratum material (2BC horizon) is 10 to 30 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is slightly acid or neutral. It is loamy fine sand, ashy sandy loam, or ashy fine sandy loam.

The Bw1 horizon has value of 4, 5, or 6 dry and chroma of 2 or 3 dry or moist. It is ashy fine sandy loam, ashy sandy loam, or ashy coarse sandy loam.

The Bw2 horizon has value of 4, 5, or 6 dry and 3 or 4 moist. It is ashy sandy loam or ashy coarse sandy loam. It is neutral or slightly alkaline.

The 2BC and 2C1 horizons have value of 5 or 6 dry and chroma of 3 or 4 dry and 2 or 3 moist. They are loamy fine sand, loamy sand, or loamy coarse sand. They are neutral or slightly alkaline.

The 2C2 and 2C3 horizons are multicolored or have hue of 10YR or 2.5Y, value of 3 to 6 dry and 1 to 4 moist, and chroma of 1 to 4 dry and 1, 2, or 3 moist. The 2C2 horizon is sand, coarse sand, or fine sand. The 2C3 horizon is sand or coarse sand. The horizons are neutral or slightly alkaline.

The Sanbee soils in this county are a taxadjunct to the Sanbee series. The Sanbee soils in detailed soil map units 275, 278, and 309 do not have an ashy surface mantle. These soils are classified as coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids. The Sanbee soils in detailed soil map units 310 and 312 have an ashy surface mantle that is 10 to 14 inches thick. These soils are classified as sandy, mixed, mesic Vitrixerandic Haplocambids.

Schawana Series

Soil depth: Shallow
Drainage class: Somewhat excessively drained
Landform: Strath terraces
Parent material: Eolian sand mixed with basaltic rock fragments over basalt
Slope range: 0 to 15 percent
Elevation: 800 to 1,200 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees
Frost-free period: 140 to 200 days

Taxonomic classification: Loamy, mixed, superactive, nonacid, mesic Lithic Xeric Torriorthents

Typical pedon of Schawana cobbly loamy fine sand in an area of Schawana complex, 0 to 15 percent slopes, about 2 miles southeast of Schawana; about 2,100 feet south and 2,400 feet east of the northwest corner of sec. 13, T. 15 N., R. 23 E. (lat. 46°47'25" N., long. 119°53'10" W.)

A—0 to 3 inches; brown (10YR 5/3) cobbly loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine roots; 15 percent gravel and 15 percent cobbles; slightly alkaline; clear wavy boundary.

C—3 to 12 inches; brown (10YR 4/3) gravelly very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine to coarse roots; 25 percent gravel; slightly alkaline; abrupt wavy boundary.

2R—12 inches; basalt.

The particle-size control section has 10 to 35 percent rock fragments. Depth to bedrock is 10 to 20 inches.

The A horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is cobbly loamy fine sand or loamy fine sand.

The C horizon has value of 4 or 5 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is gravelly very fine sandy loam, loamy very fine sand, gravelly fine sandy loam, or very fine sandy loam.

Scoon Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Structural benches
Parent material: Loess over a duripan over basalt
Slope range: 3 to 15 percent
Elevation: 1,300 to 1,500 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Xeric Haplodurids

Typical pedon of Scoon loam (fig. 24) in an area of Taunton-Scoon complex, 8 to 15 percent slopes, about 6 miles southeast of Rock Island Dam; about 1,800 feet

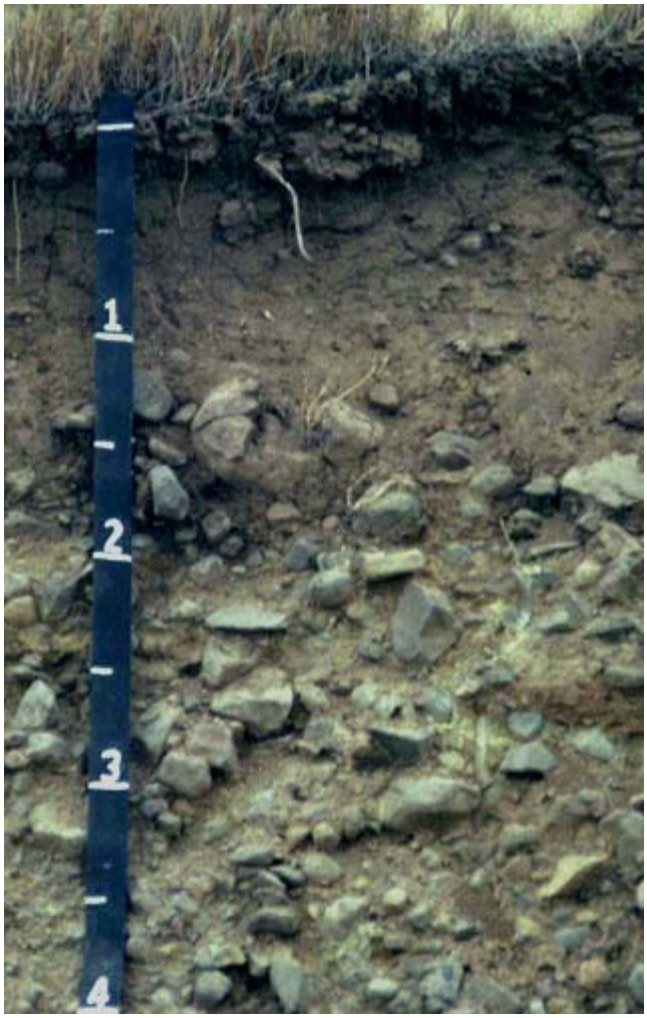


Figure 24.—Profile of a Scoon loam. The duripan, which has cemented rock fragments, is at a depth of about 15 inches. Numerals on the tape are in feet.

west and 1,375 feet north of the southeast corner of sec. 36, T. 21 N., R. 22 E. (lat. 47°15'40" N., long. 120°01'15" W.)

Ap—0 to 6 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and very fine interstitial pores; slightly alkaline; gradual wavy boundary.

Bw—6 to 10 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and very fine interstitial pores; 2 percent gravel-sized indurated duripan fragments; moderately alkaline; abrupt wavy boundary.

Bk—10 to 13 inches; pale brown (10YR 6/3) gravelly very fine sandy loam, brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine interstitial pores; 15 percent gravel-sized indurated duripan fragments; few fine filaments of secondary carbonates in pores and disseminated carbonates; slightly effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm1—13 to 17 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are white (7.5YR 8/1) when dry on duripan surfaces; violently effervescent; clear wavy boundary.

2Bkqm2—17 to 37 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—37 inches; basalt.

Depth to the duripan is 10 to 20 inches. Depth to bedrock is 30 to 60 inches or more.

The Ap horizon has value of 3 or 4 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 2 or 3 dry or moist. It is loam, silt loam, or very fine sandy loam.

The Bk horizon has value of 6 or 7 dry and 4 or 5 moist and chroma of 2 or 3 dry or moist. The fine-earth fraction is silt loam or very fine sandy loam with 10 to 25 percent gravel-sized indurated duripan fragments.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Selah Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess over duripan over basalt
Slope range: 0 to 30 percent
Elevation: 1,800 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Argiduridic Durixerolls

Typical pedon of Selah silt loam in an area of Terlan-Selah complex, 0 to 8 percent slopes, about 2 miles northeast of Farmer; about 3,900 feet north and 3,700 feet

east of the southwest corner of sec. 35, T. 25 N., R. 24 E. (lat. 47°37'24" N., long. 119°46'33" W.)

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; neutral; clear smooth boundary.

Ap2—4 to 8 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thick and very thick platy structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores and few fine tubular pores; neutral; clear smooth boundary.

AB—8 to 16 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; 3 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

Bt—16 to 23 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; hard, very firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and few fine tubular pores; common faint and few distinct clay films on faces of peds and lining pores; 3 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; abrupt wavy boundary.

2Bkq—23 to 31 inches; light gray (10YR 7/1) silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores and few very fine interstitial pores; discontinuous weakly cemented duripan is within the upper 1 inch of the horizon in places, very firm, moist; many distinct continuous coatings of secondary carbonates on faces of peds and disseminated carbonates throughout the matrix; few faint discontinuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on top of discontinuous duripan; 10 percent gravel-sized duripan fragments; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm1—31 to 35 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on duripan surface; violently effervescent; clear wavy boundary.

2Bkqm2—35 to 40 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—40 inches; basalt.

The mollic epipedon is 7 to 16 inches thick. The particle-size control section has 18 to 35 percent clay, more than 15 percent fine sand or coarser, and 0 to 10 percent rock fragments. Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The A and AB horizons have value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It is silt loam, clay loam, or silty clay loam.

The 2Bkq horizon has value of 5 to 7 dry and 3 to 5 moist and chroma of 1 to 4 dry or moist. It is silt loam, gravelly silt loam, or gravelly loam. It has 5 to 30 percent duripan fragments.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or

moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Sevar Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 30 percent
Elevation: 2,700 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Vitrandic Durixerolls

Typical pedon of Sevar ashy fine sandy loam in an area of Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes, about 7 miles northwest of Withrow; about 1,300 feet south and 950 feet west of the northeast corner of sec. 6, T. 26 N., R. 24 E. (lat. 47°47'00" N., long. 119°52'13" W.)

Ap—0 to 5 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few medium roots; common very fine and few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; slightly acid; clear smooth boundary.

A—5 to 10 inches; brown (10YR 5/3) ashy loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure; very hard, friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine and few fine interstitial pores and few very fine tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; moderately acid; clear wavy boundary.

2Bt1—10 to 15 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; very hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine tubular pores; few faint clay films on faces of peds; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt2—15 to 24 inches; brown (7.5YR 5/4) silty clay loam, brown (7.5YR 4/4) moist; strong medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; common distinct clay films on faces of peds; slightly alkaline; clear wavy boundary.

2Bt3—24 to 28 inches; light brown (7.5YR 6/4) silt loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; very hard, very firm, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine tubular pores; common faint and few distinct clay films on faces of peds; very few coatings of secondary carbonates lining pores; very slightly effervescent; moderately alkaline; abrupt smooth boundary.

3Bkqm1—28 to 32 inches; indurated duripan cemented with secondary carbonates and silica; many distinct coatings of secondary carbonates and silica that are pink (7.5YR 8/3) dry and very pale brown (10YR 8/3) when dry on duripan surface; violently effervescent; clear wavy boundary.

3Bkqm2—32 to 37 inches; thin stratified layers of weakly cemented and moderately

cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.
4R—37 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence is 7 to 14 inches. The particle-size control section has 18 to 27 percent clay and more than 15 percent fine sand or coarser. Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The A horizon has chroma of 1, 2, or 3 dry or moist.

The 2Bt1 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam or loam. It is neutral or slightly alkaline.

The 2Bt2 horizon has value of 5 or 6 dry and chroma 4 or 5 dry and 3 or 4 moist. It is silt loam or silty clay loam. It is slightly alkaline or moderately alkaline.

The 2Bt3 horizon has value of 5 to 7 dry and 4 or 5 moist and chroma of 3 or 4 dry and 2 to 4 moist. It is silt loam or loam.

The 3Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Shinn Series

Soil depth: Very shallow
Drainage class: Well drained
Landform: Intermounds of mountains
Parent material: Colluvium and residuum derived from basalt
Slope range: 3 to 65 percent
Elevation: 2,800 to 4,200 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 150 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Argixerolls

Typical pedon of Shinn very gravelly loam in an area of Lorena-Shinn complex, 3 to 30 percent slopes, about 2 miles south of the top of Badger Mountain; about 1,500 feet south and 1,300 east of the northwest corner of sec. 23, T. 24 N., R. 21 E. (lat. 47°33'30" N., long. 120°09'50" W.)

A—0 to 3 inches; brown (7.5YR 5/4) very gravelly loam, dark brown (7.5YR 3/2) moist; moderate medium granular structure; slightly hard, friable, nonsticky and nonplastic; few fine interstitial pores; many fine and very fine roots; 30 percent gravel and 5 percent cobbles; slightly acid; clear smooth boundary.
Bt1—3 to 5 inches; reddish brown (5YR 4/4) very gravelly loam, dark reddish brown (5YR 3/3) moist; moderate medium granular structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and few fine roots; few fine interstitial pores; common distinct clay films on faces of peds; many distinct continuous clay films that are reddish brown (5YR 4/4) and dark reddish brown (5YR 3/4) when dry on rock fragments; 30 percent gravel and 5 percent cobbles; neutral; gradual wavy boundary.
Bt2—5 to 9 inches; reddish brown (5YR 5/3) extremely gravelly clay loam, dark reddish brown (5YR 3/4) moist; moderate fine subangular blocky structure; very hard, very firm, moderately sticky and moderately plastic; common very fine roots matted around rock fragments; common fine and medium interstitial pores; common distinct clay films on faces of peds; common distinct continuous clay films that are yellowish red (5YR 4/6) when dry and common prominent

continuous clay films that are dark brown (7.5YR 3/3) when dry on rock fragments; 50 percent gravel and 10 percent cobbles; neutral; abrupt wavy boundary.
R—9 inches; basalt.

The mollic epipedon is 4 to 10 inches thick. The particle-size control section has 35 to 65 percent rock fragments and is 25 to 35 percent clay. Depth to bedrock is 4 to 10 inches.

The A horizon has hue of 7.5YR or 10YR and chroma of 2 to 4 dry and 1 or 2 moist. It has 15 to 35 percent rock fragments. It is slightly acid or neutral.

The Bt1 horizon has hue of 5YR or 7.5YR, value of 4 or 5 dry, and chroma of 3 or 4 dry and 2 or 3 moist. It has 35 to 55 percent rock fragments.

The Bt2 horizon has hue of 5YR or 7.5YR, value of 4 or 5 dry, and chroma of 3 or 4 moist. The fine-earth fraction is clay loam or loam. The horizon has 45 to 65 percent rock fragments.

Silico Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 30 percent
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy, glassy, mesic, shallow Vitrandic Durixerolls

Typical pedon of Silico ashy fine sandy loam in an area of Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes, about 6 miles northwest of Withrow; about 100 feet south and 300 feet east of the northwest corner of sec. 6, T. 26 N., R. 24 E. (lat. 47°47’11” N., long. 119°52’30” W.)

Ap—0 to 7 inches; brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine roots; few very fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.
Bw—7 to 12 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine roots; few very fine and fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; abrupt smooth boundary.
2Bkqm1—12 to 16 inches; indurated duripan cemented with secondary carbonates and silica; many distinct white (10YR 8/1) dry and few distinct light gray (10YR 7/2) dry and very pale brown (10YR 8/3) dry coatings of secondary carbonates and silica on duripan surface; violently effervescent; clear wavy boundary.
2Bkqm2—16 to 21 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.
3R—21 inches; basalt.

The mollic epipedon is 7 to 12 inches thick. Depth to the duripan is 10 to 20 inches. Thickness of the volcanic ash influence and depth to bedrock are 20 to 40 inches.

The Ap horizon has chroma of 2 or 3 dry.

The Bw horizon has value of 4 to 6 dry and chroma of 2 to 4 dry and 2 or 3 moist. It is ashy fine sandy loam or ashy loam.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Simsfield Series

Soil depth: Moderately deep
Drainage class: Moderately well drained
Landform: Terraces, and depressions of terraces on glaciated plateaus
Parent material: Loess and volcanic ash over glaciolacustrine deposits
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Durixerolls

Typical pedon of Simsfield ashy fine sandy loam, 3 to 8 percent slopes, about 8 miles southeast of Mansfield; about 1,200 feet south and 800 feet east of the northwest corner of sec. 7, T. 26 N., R. 27 E. (lat. 47°46'36" N., long. 119°29'32" W.)

Ap—0 to 12 inches; grayish brown (2.5Y 5/2) ashy fine sandy loam, very dark grayish brown (2.5Y 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common fine tubular pores and few fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual wavy boundary.

AB—12 to 18 inches; grayish brown (2.5Y 5/2) ashy loam, very dark grayish brown (2.5Y 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine tubular pores; 8 percent coarse and very coarse sand-sized volcanic ash; disseminated carbonates; violently effervescent; slightly alkaline; gradual smooth boundary.

2Bk—18 to 28 inches; light olive gray (5Y 6/2) silt loam, dark gray (5Y 4/1) moist; moderate coarse and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 10 percent durinodes; common faint coatings of secondary carbonates on faces of peds and common fine and medium irregular soft masses of secondary carbonates throughout matrix; violently effervescent; moderately alkaline; abrupt smooth boundary.

2Bkqm—28 to 34 inches; gray (10YR 6/1) weakly cemented duripan that crushes to silt loam and has a laminar cap less than 1 millimeter thick, dark gray (10YR 4/1) moist; slightly hard, very firm; common faint coatings of secondary carbonates that are white (2.5Y 8/1) when dry on laminar cap and few fine and medium platelike soft masses of secondary carbonates in fractures and seams; few fine irregular redoximorphic concentrations that are yellowish brown (10YR 5/6) when dry throughout matrix; violently effervescent; moderately alkaline; clear smooth boundary.

2C—34 to 60 inches; olive gray (5Y 5/2) silt loam, very dark gray (5Y 3/1) moist; massive, laminated; hard, firm, slightly sticky and nonplastic; few very fine tubular pores; disseminated carbonates; few fine distinct redoximorphic concentrations

that are strong brown (7.5YR 5/6) when moist and few fine redoximorphic concentrations that are dark olive gray (5Y 3/2) when moist mostly in pores and on horizontal laminations; strongly effervescent; slightly alkaline.

The mollic epipedon is 10 to 20 inches thick. Thickness of the volcanic ash influence is 14 to 20 inches. Depth to the duripan is 20 to 40 inches. Depth to secondary carbonates is 12 to 25 inches.

The Ap horizon has hue of 10YR or 2.5Y, value of 2 or 3 moist, and chroma of 2 or 3 dry or moist.

The AB horizon has hue of 10YR or 2.5Y, value of 3 or 4 moist, and chroma of 1 or 2 dry. It is ashy loam or ashy silt loam.

The 2Bk horizon has value of 5 or 6 dry and 3 or 4 moist. It is loam or silt loam. The calcium carbonate equivalent is 1 to 5 percent.

The 2Bkqm horizon has hue of 2.5Y or 10YR, value of 3 or 4 moist, and chroma of 0 or 1 moist. It is weakly cemented or moderately cemented with carbonates and silica. It is slightly alkaline to strongly alkaline.

The 2C horizon has hue of 5Y to 10YR and value of 3 or 4 moist. The redoximorphic concentrations have hue of 5Y to 10YR, value of 3 to 5 moist, and chroma of 3 to 6 moist. The sodium absorption ratio (SAR) is 1 to 8.

Siweeka Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess and volcanic ash over a duripan over glacial till or glacial till over basalt
Slope range: 0 to 65 percent
Elevation: 1,300 to 3,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 170 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Durixerolls

Typical pedon of Siweeka ashy fine sandy loam in an area of Siweeka complex, 0 to 8 percent slopes, about 3 miles southwest of Sims Corner; about 200 feet north and 200 feet east of the southwest corner of sec. 4, T. 26 N., R. 28 E. (lat. 47°46'24" N., long. 119°18'57" W.)

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; few very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; clear wavy boundary.

A—9 to 16 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; clear wavy boundary.

AB—16 to 27 inches; grayish brown (10YR 5/2) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine tubular pores and few fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

2Bk—27 to 36 inches; gray (10YR 5/1) gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine tubular pores; common distinct coatings of secondary carbonates that are white (2.5Y 8/1) when dry on rock fragments and disseminated carbonates throughout matrix; 15 percent gravel and 5 percent cobbles; violently effervescent; moderately alkaline; abrupt smooth boundary.

2Bkqm—36 to 42 inches; gray (5Y 5/1) weakly cemented duripan that crushes to very cobbly sandy loam, dark olive gray (5Y 3/2) moist; massive; very hard, extremely firm, nonsticky and nonplastic; few very fine interstitial pores; many fine filaments of secondary carbonates in pores; many distinct coatings of secondary carbonates and silica that are white (10YR 8/2) and light brown (7.5YR 6/4) when moist on surface of laminar cap; 25 percent gravel and 15 percent cobbles; violently effervescent; strongly alkaline; clear wavy boundary.

2Cdk—42 to 60 inches; dark gray (5Y 4/1) dense till that crushes to very cobbly sandy loam, dark olive gray (5Y 3/2) moist; massive; hard, extremely firm, nonsticky and nonplastic; few fine filaments of secondary carbonates in pores and few distinct coatings of secondary carbonates in fractures and seams; 25 percent gravel and 30 percent cobbles; violently effervescent; moderately alkaline.

The mollic epipedon is 10 to 30 inches thick. Thickness of the volcanic ash influence is 14 to 30 inches. Depth to the duripan is 20 to 40 inches. Where present, depth to dense glacial till is 24 to 44 inches. Where present, depth to bedrock is 40 to 60 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is ashy fine sandy loam, ashy loam, or ashy sandy loam. It is neutral or slightly alkaline.

The AB horizon has hue of 10YR or 5Y and chroma of 2 or 3 dry or moist. It is gravelly or cobbly ashy sandy loam, gravelly ashy fine sandy loam, gravelly ashy loam, or very cobbly ashy sandy loam. It is neutral to moderately alkaline.

The 2Bk horizon has hue of 2.5Y, 5Y, or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 1 to 4 dry and 2 or 3 moist. It is gravelly loam or cobbly or very cobbly fine sandy loam or sandy loam. It is neutral to moderately alkaline.

The 2Bkqm horizon has hue of 2.5Y or 5Y, value of 5 or 6 dry and 2 to 4 moist, and chroma of 1 or 2 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. It is gravelly, cobbly, or very cobbly sandy loam or very gravelly loam. It is slightly alkaline to strongly alkaline.

The 2Cdk horizon has hue of 5Y or 2.5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 1 or 2 dry or moist. It is gravelly, cobbly, or very cobbly fine sandy loam or gravelly, cobbly, or very cobbly sandy loam. It is slightly alkaline or moderately alkaline.

Skaha Series

Soil depth: Very deep
Drainage class: Excessively drained
Landform: Terraces, and terraces, kames, and eskers on glaciated plateaus
Parent material: Glacial outwash
Slope range: 0 to 65 percent
Elevation: 700 to 2,800 feet
Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 190 days

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Torriorthents

Typical pedon of Skaha cobbly loamy sand, 0 to 8 percent slopes, about 2 miles southeast of the confluence of China Creek and the Columbia River; about 2,600 feet north and 1,800 feet east of the southwest corner of sec. 10, T. 30 N., R. 29 E. (lat. 48°06'50" N., long. 119°09'40" W.)

Ap—0 to 6 inches; grayish brown (10YR 5/2) cobbly loamy sand, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine interstitial pores and few very fine tubular pores; 10 percent gravel and 5 percent cobbles; cobbles on surface; neutral; gradual wavy boundary.
C1—6 to 15 inches; brown (10YR 5/3) cobbly loamy sand, very dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; common very fine and few fine interstitial pores; 15 percent gravel and 15 percent cobbles; slightly alkaline; gradual wavy boundary.
C2—15 to 60 inches; multicolored very gravelly coarse sand; single grain; loose, nonsticky and nonplastic; very few distinct coatings of secondary silica that are white (2.5Y 8/1) and very pale brown (10YR 7/3) when moist on underside of rock fragments; 40 percent gravel and 10 percent cobbles; slightly alkaline.

The organic matter content is 0.5 to 1.0 percent. The particle-size control section has 40 to 70 percent rock fragments. The profile is neutral or slightly alkaline.

The Ap horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It is gravelly fine sandy loam, cobbly loamy sand, or very cobbly loamy sand.

The C horizon is multicolored or has hue of 10YR or 2.5Y and value of 5 to 7 dry and 3 or 4 moist. The fine-earth fraction is loamy coarse sand, loamy sand, or sand. The horizon has 30 to 75 percent rock fragments.

The Skaha soils in detailed soil map units 346 and 375 are a taxadjunct to the Skaha series. The soils in these map units have a mollic epipedon. They are classified as loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls.

Slickear Series

Soil depth: Deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 40 percent
Elevation: 2,400 to 3,200 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Vitrandic Argixerolls

Typical pedon of Slickear ashy fine sandy loam, 0 to 8 percent slopes, about 5 miles northwest of Withrow; about 1,100 feet east and 600 feet north of the southwest corner of sec. 6, T. 26 N., R. 24 E. (lat. 47°46'16" N., long. 119°52'08" W.)

Ap—0 to 5 inches; brown (10YR 5/3) ashy fine sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very

friable, nonsticky and slightly plastic; many very fine, few fine, and common medium roots; few very fine and fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

AB—5 to 10 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; strong coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores and few fine and very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; clear wavy boundary.

Bw—10 to 22 inches; yellowish brown (10YR 5/4) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and few fine tubular pores and few very fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; slightly alkaline; abrupt wavy boundary.

2Btkn1—22 to 40 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; very hard, very firm, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; many distinct clay films on faces of peds; few fine filaments of secondary carbonates in pores; 5 percent coarse and very coarse sand-sized volcanic ash; slightly effervescent; slightly alkaline; abrupt wavy boundary.

2Btkn2—40 to 46 inches; brownish yellow (10YR 6/6) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine and medium subangular blocky structure; very hard, very firm, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores and few very fine vesicular pores; few faint clay films on faces of peds; few fine filaments of secondary carbonates in pores, few distinct coatings of secondary carbonates on faces of peds, and disseminated carbonates throughout matrix; 10 percent coarse and very coarse sand-sized volcanic ash; violently effervescent; moderately alkaline; abrupt wavy boundary.

3Bkqm1—46 to 50 inches; indurated duripan cemented with secondary carbonates and silica; many distinct coatings of secondary carbonates and silica that are very pale brown (10YR 8/2 and 10YR 8/3) when dry on duripan surfaces; violently effervescent; clear wavy boundary.

3Bkqm2—50 to 55 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

4R—55 inches; basalt.

The mollic epipedon is 10 to 20 inches thick. Thickness of the volcanic ash influence is 10 to 28 inches. The particle-size control section has 18 to 30 percent clay and less than 15 percent fine sand or coarser. Depth to secondary carbonates is 17 to 28 inches. Depth to the indurated duripan is 40 to 60 inches. Depth to bedrock is 50 to 60 inches.

The Ap horizon has value of 2 or 3 moist and chroma of 2 or 3 dry.

The AB horizon has chroma of 2 or 3 dry or moist. It is ashy fine sandy loam or ashy loam.

The Bw horizon has value of 3 or 4 moist and chroma of 3 or 4 dry. It is ashy fine sandy loam or ashy loam.

The 2Btkn horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 3 to 6 dry. It is silt loam or silty clay loam. It is slightly alkaline to strongly alkaline. The sodium absorption ratio (SAR) is 13 to 20.

The 3Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Slusser Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess or over older loess over a duripan
Slope range: 0 to 30 percent
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Vitritorrandic Argixerolls

Typical pedon of Slusser ashy fine sandy loam, cemented substratum, 8 to 30 percent slopes, about 5.5 miles east-northeast of Waterville; about 2,300 feet north and 1,800 feet east of the southwest corner of sec. 4, T. 25 N., R. 23 E. (lat. 47°41'26" N., long. 119°57'19" W.)

Ap—0 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and few fine roots; few very fine tubular pores and common very fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

A—7 to 12 inches; brown (10YR 5/3) ashy silt loam, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; hard, friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 12 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt1—12 to 22 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; strong medium prismatic structure parting to strong medium and coarse subangular blocky; very hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; very few faint clay films lining pores and few faint clay bridges between sand grains; common distinct stress surfaces on faces of peds; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt2—22 to 46 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; strong coarse prismatic structure; very hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine and common fine tubular pores; few faint clay films lining pores and on faces of peds; common distinct stress surfaces on faces of peds; 6 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt wavy boundary.

2Bt3—46 to 58 inches; light yellowish brown (10YR 6/4) silt loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few fine tubular pores and common very fine interstitial pores; few faint clay films lining pores and on faces of peds; common distinct stress surfaces on faces of peds; slightly alkaline; clear wavy boundary.

3Bkqm—58 to 60 inches; light yellowish brown (10YR 6/4) moderately cemented duripan that crushes to sandy loam, dark yellowish brown (10YR 4/4) moist; massive; very hard, friable, nonsticky and nonplastic; common very fine tubular pores and common very fine interstitial pores; few fine filaments of secondary

carbonates in pores and on faces of peds, strongly effervescent; 10 percent gravel-sized duripan fragments; slightly alkaline.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 20 inches. The particle-size control section has 10 to 18 percent clay and less than 15 percent fine sand or coarser. Depth to secondary carbonates is 44 inches or more. Where present, depth to the duripan is 40 to 60 inches. Where present, depth to bedrock is 50 to 60 inches.

The Ap horizon has chroma of 2 or 3 dry or moist.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist. It is ashy fine sandy loam, ashy silt loam, or ashy loam.

The 2Bt1 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist.

The 2Bt2 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is neutral or slightly alkaline.

The 2Bt3 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is slightly alkaline or moderately alkaline.

The 3Bkqm horizon, where present, has value of 5, 6, or 7 dry and chroma of 3 or 4 dry or moist. It is weakly cemented, moderately cemented, or indurated with carbonates and silica. The weakly cemented or moderately cemented duripan crushes to sandy loam, gravelly sandy loam, or gravelly loam.

Soaplake Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Scarp slopes of plateaus
Parent material: Residuum and colluvium derived from granite
Slope range: 0 to 65 percent
Elevation: 800 to 2,400 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Loamy, mixed, superactive, mesic Lithic Haploxerolls

Typical pedon of Soaplake fine sandy loam in an area of Soaplake-Roosevelt-Rock outcrop complex, 0 to 30 percent slopes, about 3 miles east of Bridgeport; about 1,200 feet west of the center of sec. 17, T. 29 N., R. 26 E. (lat. 48°01’20” N., long. 119°35’42” W.)

A1—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine and very fine tubular pores; 5 percent gravel; gradual wavy boundary.
A2—4 to 12 inches; grayish brown (10YR 5/2) fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine and medium interstitial and tubular pores; 5 percent gravel; abrupt wavy boundary.
2R—12 inches; granite.

The mollic epipedon is 7 to 12 inches thick. The particle-size control section has 5 to 15 percent rock fragments. Depth to bedrock is 10 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is fine sandy loam or gravelly sandy loam. It has 2 to 20 percent gravel and 0 to 5 percent cobbles.

Spofford Series

Soil depth: Deep
Drainage class: Moderately well drained
Landform: Circular areas of nonglaciated plateaus
Parent material: Loess over older loess over a duripan over basalt
Slope range: 3 to 15 percent
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Natrixerolls

Typical pedon of Spofford silt loam in an area of Broadax-Morrow-Spofford complex, 3 to 8 percent slopes, about 6 miles southwest of Banks Lake south dam; about 1,300 feet south and 1,000 feet west of the center of sec. 7, T. 24 N., R. 27 E. (lat. 47°30'30" N., long. 119°36'50" W.)

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; many very fine interstitial and vesicular pores; neutral; clear wavy boundary.

A—7 to 9 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; neutral; abrupt smooth boundary.

Btn—9 to 13 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; strong coarse columnar or prismatic structure; hard, very firm, sticky and plastic; common very fine roots; common very fine and fine tubular pores; many prominent organic matter stains and common prominent clay films on faces of peds; strongly alkaline; abrupt wavy boundary.

Btknz—13 to 21 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few medium tubular pores; few faint clay films on faces of peds; common fine filaments in pores and common fine irregular soft masses of secondary carbonates and other salts on faces of peds; strongly effervescent; strongly alkaline; abrupt wavy boundary.

Btkn—21 to 32 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine tubular pores; few faint clay films on faces of peds; common fine filaments of secondary carbonates and other salts in pores; slightly effervescent; very strongly alkaline; clear wavy boundary.

Bk—32 to 44 inches; brown (10YR 4/3) silt loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine tubular pores; common fine filaments of secondary carbonates in pores and disseminated carbonates; strongly effervescent; strongly alkaline; abrupt wavy boundary.

2Bkqm—44 to 53 inches; brown (10YR 5/3) moderately cemented duripan that crushes to sandy loam, brown (10YR 4/3) moist; very hard, very firm, nonsticky and nonplastic; common very fine and fine tubular pores; common distinct coatings of secondary carbonates lining pores and disseminated carbonates; violently effervescent; strongly alkaline; gradual wavy boundary.

2Bk—53 to 58 inches; brown (10YR 5/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine

and fine tubular pores; common distinct coatings of secondary carbonates lining pores, few fine irregular soft masses of secondary carbonates throughout matrix and on faces of peds, and disseminated carbonates; strongly effervescent; strongly alkaline; abrupt smooth boundary.

3R—58 inches; basalt.

The mollic epipedon is 7 to 14 inches thick and may include part of the natric horizon. The particle-size control section averages 20 to 30 percent clay and less than 15 percent fine sand or coarser. Depth to secondary carbonates is 15 to 40 inches. Depth to the duripan is 40 to 60 inches. Depth to bedrock is 50 to 60 inches. Depth to the natric horizon is 6 to 10 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 3 dry or moist. It is neutral or slightly alkaline.

The A horizon has chroma of 2 to 4 dry.

The Btn horizon has value of 4 or 5 dry. The sodium adsorption ratio (SAR) is 13 to 20.

The Btknz and Btkn horizons have value of 4 to 6 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. They are strongly alkaline or very strongly alkaline. The sodium adsorption ratio (SAR) is 5 to 20.

The Bk and 2Bk horizons have value of 4 to 7 dry and 4 or 5 moist and chroma of 2 to 4 dry or moist. They are slightly alkaline to strongly alkaline.

The 2Bkqm horizon has value of 5 or 6 dry. It is weakly cemented or moderately cemented with carbonates and silica.

Sprauer Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess and volcanic ash over a duripan over basalt
Slope range: 0 to 30 percent
Elevation: 2,000 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Durixerolls

Typical pedon of Sprauer ashy fine sandy loam, 0 to 8 percent slopes, about 2 miles northwest of Withrow; about 300 feet north and 2,200 feet east of the southwest corner of sec. 20, T. 26 N., R. 24 E. (lat. 47°43'46" N., long. 119°50'46" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; few very fine tubular pores and common very fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel-sized indurated duripan fragments; neutral; abrupt smooth boundary.

Bw—8 to 22 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate very coarse subangular blocky structure parting to moderate coarse subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores and common very fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel-sized indurated duripan fragments; slightly alkaline; clear wavy boundary.

Bk—22 to 30 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3)

moist; moderate coarse and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores and common very fine and few fine interstitial pores; few fine filaments of calcium carbonate in pores and disseminated carbonates; 7 percent calcium carbonate equivalent; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel-sized indurated duripan fragments; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—30 to 40 inches; indurated duripan cemented with secondary carbonates and silica; few fine irregular pockets of pale brown (10YR 6/3) hardpan scattered throughout matrix; common very fine roots in upper part of duripan fractures; many distinct continuous coatings of secondary carbonates and silica that are white (7.5YR 8/1) when dry on duripan surface; many angular and subangular gravel-sized basalt fragments encased within duripan; fractured duripan plates average 4 to 7 inches wide and 1.5 to 2.5 inches thick; abrupt wavy boundary.

3R—40 inches; basalt.

The mollic epipedon is 7 to 15 inches thick. Thickness of the volcanic ash influence is 20 to 40 inches. Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The Ap horizon has chroma of 2 or 3 dry or moist.

The Bw horizon is ashy fine sandy loam or ashy sandy loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist. It is ashy fine sandy loam, ashy loam, or ashy silt loam. The calcium carbonate equivalent is 1 to 8 percent. The horizon is slightly alkaline or moderately alkaline.

The 2Bkqm horizon is indurated and is cemented with carbonates and silica. It is 4 to 24 inches thick. It is fractured with plates 4 to 14 inches wide and 1 to 4 inches thick.

St. Andrews Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Depressions of glaciated plateaus
Parent material: Loess mixed with volcanic ash over glaciolacustrine deposits over a duripan over glacial till
Slope range: 0 to 8 percent
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Vitritorrandic Durixerolls

Typical pedon of St. Andrews ashy loam, 0 to 3 percent slopes, about 12.5 miles east of Mansfield; about 550 feet west and 200 feet south of the northeast corner of sec. 1, T. 26 N., R. 27 E. (lat. 47°47'09" N., long. 119°21'50" W.)

Ap—0 to 7 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; common very fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; slightly alkaline; clear wavy boundary.

A—7 to 14 inches; grayish brown (10YR 5/2) ashy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable,

slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores and few very fine interstitial pores; common faint skeletans on faces of peds in the lower 2 inches of the horizon; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; slightly alkaline; abrupt smooth boundary.

2Btk1—14 to 21 inches; grayish brown (2.5Y 5/2) silt loam, dark grayish brown (2.5Y 4/2) moist; strong medium prismatic structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common fine tubular pores and few very fine interstitial pores; many distinct clay films that are light olive brown (2.5Y 5/4) when moist on faces of peds; common fine filaments of secondary carbonates in pores; 1 percent calcium carbonate equivalent; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; strongly effervescent; slightly alkaline; clear wavy boundary.

2Btk2—21 to 29 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular and interstitial pores; few faint clay films that are light olive brown (2.5Y 5/4) when moist and few distinct stress surfaces on faces of peds; few fine irregular soft masses of secondary carbonates and disseminated carbonates scattered throughout horizon; 1 percent calcium carbonate equivalent; 10 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—29 to 33 inches; gray (2.5Y 5/1) moderately cemented duripan that crushes to gravelly sandy loam, black (5Y 2.5/2) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots in fractures 4 to 10 inches apart; few very fine tubular and interstitial pores; many distinct coatings of secondary carbonates and silica that are pinkish white (7.5YR 8/2) when dry on laminar cap; few fine irregular hard concretions of secondary carbonates and disseminated carbonates throughout matrix below laminar cap; common distinct coatings of secondary carbonates on rock fragments; 15 percent gravel, 5 percent cobbles, and 10 percent gravel-sized duripan fragments; violently effervescent; moderately alkaline; abrupt wavy boundary.

3Cdk—33 to 60 inches; dark gray (2.5Y 4/1) dense till that crushes to gravelly coarse sandy loam, dark olive gray (5Y 3/2) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 20 percent gravel and 10 percent cobbles; common distinct coatings of secondary carbonates on rock fragments, strongly effervescent; and disseminated carbonates, very slightly effervescent; 5 percent calcium carbonate equivalent; slightly alkaline.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 19 inches. The particle-size control section has 18 to 27 percent clay and more than 15 percent fine sand or coarser. Depth to the argillic horizon and secondary carbonates is 10 to 19 inches. Depth to the duripan is 20 to 40 inches. Depth to the dense glacial till is 21 to 50 inches.

The Ap horizon has value of 4 or 5 dry and chroma of 2 or 3 moist.

The A horizon has chroma of 2 or 3 dry or moist. It is ashy loam or ashy silt loam. It is neutral or slightly alkaline.

The 2Btk horizon has hue of 10YR, 2.5Y, or 5Y, value of 4, 5, or 6 dry and 3 or 4 moist, and chroma of 1, 2, or 3 dry and 2 or 3 moist. It is silt loam or loam. It is slightly alkaline to strongly alkaline. The calcium carbonate equivalent is 1 to 10 percent.

The 2Bkqm horizon has hue of 10YR, 2.5Y, or 5Y, value of 5, 6, or 7 dry and 2, 3, or 4 moist, and chroma of 1 or 2 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. It is gravelly, very gravelly, cobbly, or very cobbly sandy loam, loam, or coarse sandy loam. It is moderately alkaline or strongly alkaline.

The 3Cdk horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 7 dry and 3 to 6 moist, and chroma of 1 or 2 dry or moist. It crushes to gravelly coarse sandy loam, cobbly sandy loam, gravelly loam, or gravelly fine sandy loam. The content of rock fragments averages 15 to 35 percent, with 10 to 20 percent gravel, 5 to 25 percent cobbles, and 0 to 5 percent stones. The horizon is slightly alkaline or moderately alkaline.

Starbuck Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with colluvium derived from basalt
Slope range: 0 to 45 percent
Elevation: 1,200 to 1,700 feet
Mean annual precipitation: 7 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids

Typical pedon of Starbuck stony very fine sandy loam in an area of Starbuck-Bakeoven-Rock outcrop complex, 0 to 45 percent slopes, about 0.5 mile northeast of Ruff; about 1,500 feet west and 1,500 feet north of the southeast corner of sec. 36, T. 20 N., R. 30 E. (lat. 47°10'42" N., long. 118°59'08" W.)

A—0 to 5 inches; brown (10YR 5/3) stony very fine sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, friable, nonsticky and slightly plastic; many very fine roots; common very fine tubular pores; 15 percent stones and 10 percent gravel and cobbles; slightly alkaline; clear smooth boundary.
Bw—5 to 15 inches; yellowish brown (10YR 5/4) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine tubular pores; 15 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.
2R—15 inches; basalt.

The particle-size control section has 5 to 35 percent rock fragments. Depth to bedrock is 10 to 20 inches.

The A horizon has value of 5 or 6 dry and 2 or 4 moist and chroma of 2 to 4 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 to 5 moist and chroma of 2 to 4 dry or moist. It is gravelly fine sandy loam or very fine sandy loam.

Stemilt Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: Draws and depressions of mountains on nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over colluvium derived from basalt
Slope range: 3 to 65 percent
Elevation: 2,000 to 4,200 feet
Mean annual precipitation: 14 to 24 inches

Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 75 to 125 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, frigid Vitrandic Argixerolls

Typical pedon of Stemilt stony ashy loam in an area of Stemilt-Cordy complex, 30 to 60 percent slopes, about 5 miles southwest of Waterville; about 1,500 feet south and 1,500 feet east of the northwest corner of sec. 1, T. 24 N., R. 21 E. (lat. 47°36'30" N., long. 120°03'35" W.)

A1—0 to 9 inches; dark grayish brown (10YR 4/2) stony ashy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure, soft, friable, nonsticky and nonplastic; common very fine to coarse roots; many fine interstitial pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; neutral; clear wavy boundary.

A2—9 to 18 inches, grayish brown (10YR 5/2) cobbly ashy loam, dark brown (10YR 3/3) moist; weak medium granular structure; slightly hard, friable, nonsticky and slightly plastic; common very fine to coarse roots; common fine and medium interstitial pores; 15 percent gravel and 15 percent cobbles; neutral; gradual wavy boundary.

2Bt1—18 to 40 inches; brown (10YR 5/3) extremely cobbly clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine to medium roots; common fine interstitial pores; few faint discontinuous clay films on faces of peds and common distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 30 percent gravel and 35 percent cobbles; neutral; gradual wavy boundary.

2Bt2—40 to 60 inches; yellowish brown (10YR 5/4) extremely cobbly clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, very firm, moderately sticky and moderately plastic; few very fine to medium roots; common fine interstitial pores; few faint discontinuous clay films on faces of peds and common distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 20 percent gravel and 45 percent cobbles; neutral.

The mollic epipedon is 10 to 18 inches thick. Thickness of the volcanic ash influence is 10 to 18 inches. The particle-size control section averages 18 to 35 percent clay and 35 to 60 percent rock fragments. Depth to bedrock is 40 to 60 inches or more.

The A1 horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is ashy loam or stony ashy loam.

The A2 horizon has chroma of 1, 2, or 3 dry or moist. It is cobbly or extremely cobbly ashy loam.

The 2Bt horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is extremely cobbly or very cobbly clay loam.

Strat Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces, and terraces, kames, and eskers on glaciated plateaus
Parent material: Glacial outwash
Slope range: 0 to 65 percent
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 13 inches

Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Strat very stony silt loam, 0 to 8 percent slopes, about 8 miles northeast of Palisades; about 360 feet east of the southwest corner of sec. 31, T. 23 N., R. 25 E. (lat. 47°26'22" N., long. 119°44'41" W.)

A—0 to 10 inches; brown (10YR 5/3) very stony silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many fine and medium tubular pores; 15 percent gravel, 15 percent cobbles, and 10 percent stones; slightly alkaline; clear smooth boundary.

Bw1—10 to 18 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; few fine tubular pores; 20 percent gravel and 35 percent cobbles; slightly alkaline; gradual smooth boundary.

Bw2—18 to 22 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 40 percent gravel and 15 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Bkq—22 to 60 inches; yellowish brown (10YR 5/4) extremely gravelly sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; common distinct coatings of secondary carbonates and silica that are white (10YR 8/1) when dry on undersides of rock fragments, slightly effervescent; 65 percent gravel, 10 percent cobbles, and 5 percent stones that are dominantly basalt; slightly alkaline.

The mollic epipedon is 8 to 12 inches thick. The particle-size control section averages 35 to 80 percent rock fragments. Depth to the sandy-skeletal material (2Bkq horizon) and secondary carbonates is 20 to 36 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 moist or dry. It is silt loam, cobbly or very cobbly sandy loam, very stony silt loam, or cobbly ashy sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is cobbly, very cobbly, or very gravelly silt loam, loam, sandy loam, very fine sandy loam, or fine sandy loam. It is neutral to moderately alkaline.

The 2Bkq horizon is multicolored, or it has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 6 moist, and chroma of 1 to 4 dry or moist. The fine earth-fraction is dominantly sand or coarse sand and has 35 to 90 percent rock fragments. The rock fragments have white coatings of secondary carbonates and silica. The horizon has 1 to 8 percent calcium carbonate equivalent. It is slightly alkaline or moderately alkaline.

The Strat soils in detailed soil map units 373 and 375 are a taxadjunct to the Strat series. The surface horizon of the soils in these units contains volcanic ash. The Strat soil in these map units are classified as Vitritorrandic Haploxerolls.

Stratford Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess mixed with gravelly outwash over extremely gravelly outwash
Slope range: 0 to 15 percent

Elevation: 1,500 to 2,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls

Typical pedon of Stratford silt loam, 3 to 8 percent slopes, about 10 miles northeast of Palisades; about 700 feet north and 600 feet west of the southeast corner of sec. 29, T. 23 N., R. 25 E. (lat. 47°27'34" N., long. 119°42'23" W.)

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, friable, nonsticky and nonplastic; common very fine roots; few fine interstitial pores; neutral; gradual wavy boundary.
Bw1—7 to 18 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine roots; common fine and medium interstitial pores; slightly alkaline; 2 percent gravel; gradual wavy boundary.
Bw2—18 to 22 inches; yellowish brown (10YR 5/4) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine roots; common fine and medium interstitial pores; slightly alkaline; 15 percent gravel; gradual wavy boundary.
2Bkq—22 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; common distinct coatings of secondary carbonates and silica that are white (2.5Y 8/1) when dry, slightly effervescent; 50 percent gravel and 10 percent cobbles; slightly alkaline.

The mollic epipedon is 7 to 10 inches thick. Depth to the sandy-skeletal material and secondary carbonates (2Bkq horizon) is 20 to 30 inches. The lower part of the control section has 35 to 75 percent rock fragments.

The Ap horizon has chroma of 2 or 3 dry or moist.

The Bw horizon has chroma of 3 or 4 dry or moist.

The 2Bkq horizon is multicolored and is very gravelly or extremely gravelly coarse sand. It has 1 to 5 percent calcium carbonate equivalent.

Stubblefield Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess mixed with glacial till over a duripan over dense glacial till
Slope range: 0 to 70 percent
Elevation: 1,000 to 2,900 feet
Mean annual precipitation: 9 to 13 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 120 to 180 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Cambidic Durixerolls

Typical pedon of a Stubblefield very cobbly fine sandy loam in an area of Touhey-Stubblefield complex, 0 to 8 percent slopes, about 0.5 mile southwest of Mansfield; about 2,300 feet south and 1,300 feet west of the northeast corner of sec. 26, T. 27 N., R. 25 E. (lat. 47°8'55" N., long. 119°38'40" W.)

Ap—0 to 5 inches; brown (10YR 5/3) very cobbly fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine and few very fine roots; common fine interstitial pores; 15 percent gravel and 20 percent cobbles; neutral; clear smooth boundary.

A—5 to 10 inches; brown (10YR 5/3) very cobbly fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine and very fine interstitial pores; 15 percent gravel, 25 percent cobbles, and 5 percent stones; neutral; gradual wavy boundary.

Bw—10 to 16 inches; pale brown (10YR 6/3) very cobbly fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few fine and medium tubular pores; 30 percent cobbles, 5 percent gravel, and 5 percent stones; slightly alkaline; clear wavy boundary.

Bk—16 to 30 inches; light gray (10YR 7/1) very cobbly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine and medium tubular pores; 15 percent gravel, 30 percent cobbles, and 5 percent stones; violently effervescent; common fine filaments of secondary carbonates in pores and common fine irregular soft masses of secondary carbonates throughout matrix; moderately alkaline; clear wavy boundary.

2Bkqm—30 to 38 inches; light gray (10YR 7/1) strongly cemented duripan that crushes to very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; extremely hard, very firm, nonsticky and nonplastic; few very fine matted roots on top of duripan; few very fine tubular pores; common distinct coatings of secondary carbonates and silica that are white (2.5YR 8/1) when dry and reddish yellow (5YR 6/6 and 5YR 6/8) when moist on laminar cap; common fine filaments of secondary carbonates in pores and common fine platelike hard masses of secondary carbonates in fractures and seams; few distinct coatings of secondary carbonates on rock fragments; 25 percent gravel, 10 percent cobbles, and 5 percent stones; violently effervescent; strongly alkaline; clear wavy boundary.

2Cdk—38 to 60 inches; light gray (10YR 7/2) dense till that crushes to gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine tubular pores; few fine filaments of secondary carbonates in pores and few fine irregular soft masses of secondary carbonates throughout matrix; 20 percent gravel, 5 percent cobbles, and 5 percent stones; strongly effervescent; strongly alkaline.

The mollic epipedon is 7 to 12 inches thick. Depth to the duripan is 20 to 40 inches. Depth to dense glacial till is 22 to 60 inches.

The A horizon has chroma of 2 or 3 dry or moist. It has 10 to 35 percent rock fragments. It is very cobbly, very stony, or extremely bouldery fine sandy loam or stony loam.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. The fine-earth fraction is fine sandy loam, sandy loam, or loam. The horizon has 35 to 50 percent rock fragments.

The Bk horizon has hue of 10YR or 2.5Y, value 6 or 7 dry and 4 or 5 moist, and chroma of 1 to 3 dry or moist. The fine-earth fraction is sandy loam or fine sandy loam. The horizon has 35 to 55 percent rock fragments.

The 2Bkqm horizon has hue of 10YR or 2.5Y, value 5 to 7 dry and 3 to 5 moist, and chroma of 1 or 2 dry or moist. It is weakly cemented to strongly cemented with carbonates and silica. The fine-earth fraction is sandy loam or fine sandy loam. The horizon has 25 to 55 percent rock fragments.

The 2Cdk horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 1 or 2 dry or moist. The fine-earth fraction is sandy loam or fine sandy loam. The horizon has 20 to 60 percent rock fragments.

Supplee Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 3 to 15 percent
Elevation: 1,000 to 1,700 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitritorrandic Haploxerolls

Typical pedon of Supplee ashy very fine sandy loam, 3 to 8 percent slopes, about 11 miles north of Orondo; about 1,200 feet south of the northeast corner of sec. 28, T. 26 N., R. 21 E. (lat. 47°43'21" N., long. 120°11'50" W.)

A—0 to 9 inches; grayish brown (10YR 5/2) ashy very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; clear smooth boundary.
Bw1—9 to 18 inches; brown (10YR 5/3) ashy very fine sandy loam, very dark grayish brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; common fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash and 10 percent pumice 2 to 5 millimeters in diameter; slightly alkaline; gradual wavy boundary.
Bw2—18 to 27 inches; brown (10YR 5/3) gravelly ashy very fine sandy loam, brown (10YR 4/3) moist; weak very coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine and very fine interstitial and tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash and 15 percent pumice 2 to 5 millimeters in diameter; 20 percent gravel and a few cobbles; slightly alkaline; clear wavy boundary.
2C—27 to 60 inches; multicolored extremely cobbly sand; single grain; loose, nonsticky and nonplastic; 30 percent gravel, 35 percent cobbles, 10 percent stones, and a few boulders; neutral.

The mollic epipedon is 7 to 12 inches thick. Thickness of the volcanic ash influence is 20 to 40 inches. Depth to the sandy-skeletal material (2C horizon) is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry and 3 or 4 moist. It is ashy very fine sandy loam, ashy fine sandy loam, or ashy sandy loam with 5 to 20 percent gravel in the lower part. The horizon is neutral or slightly alkaline.

The 2C horizon is multicolored and is extremely cobbly or extremely gravelly sand. It is neutral to moderately alkaline.

Swakane Series

Soil depth: Shallow
Drainage class: Well drained
Landform: South aspects and intermounds of glaciated plateaus
Parent material: Residuum and colluvium derived from granite
Slope range: 0 to 70 percent
Elevation: 1,000 to 3,100 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Haploxerolls

Typical pedon of Swakane cobbly loam in an area of Conconully-Swakane-Rock outcrop complex, 30 to 60 percent slopes, about 3.5 miles northeast of Wilson Butte; about 2,300 feet north and 1,050 feet west of the southeast corner of sec. 25, T. 30 N., R. 29 E. (lat. 48°04'12" N., long. 119°06'28" W.)

A—0 to 8 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; common very fine interstitial pores; 5 percent gravel and 15 percent cobbles; slightly acid; gradual wavy boundary.
AB—8 to 13 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; 35 percent gravel and 15 percent cobbles; neutral; gradual wavy boundary.
Bw—13 to 18 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, firm, nonsticky and slightly plastic; common very fine roots; few very fine interstitial pores; 30 percent gravel and 10 percent cobbles; slightly acid; abrupt wavy boundary.
2R—18 inches; granite.

The mollic epipedon is 7 to 10 inches thick. The particle-size control section has 35 to 70 percent rock fragments. Depth to bedrock is 10 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 to 4 dry and 1 to 3 moist. It is slightly acid or neutral.

The AB horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is very gravelly loam or very gravelly sandy loam.

The Bw horizon has value of 5 or 6 dry and 4 or 5 moist and chroma of 3 or 4 dry or moist. It is very gravelly sandy loam or extremely gravelly sandy loam.

Tagear Series

Soil depth: Deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess and volcanic ash over glacial till over a duripan over dense till or basalt
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Haploxerolls

Typical pedon of Tagear ashy fine sandy loam, 0 to 8 percent slopes, about 1 mile southeast of Mansfield; about 300 feet south and 1,600 feet west of the northeast corner of sec. 36, T. 27 N., R. 25 E. (lat. 47°48'30" N., long. 119°37'33" W.)

Ap—0 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; slightly acid; clear wavy boundary.

A—7 to 13 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual wavy boundary.

Bw—13 to 27 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

Bk1—27 to 34 inches; pale brown (10YR 6/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine interstitial pores and few fine tubular pores; few fine filaments of secondary carbonates in pores, common distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates throughout matrix; 15 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bk2—34 to 39 inches; grayish brown (2.5Y 5/2) cobbly sandy loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; many fine interstitial pores; few fine filaments of secondary carbonates in pores, common distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates throughout matrix; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 15 percent cobbles; violently effervescent; strongly alkaline; clear wavy boundary.

2Bk3—39 to 49 inches; light brownish gray (2.5Y 6/2) very gravelly loamy sand, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many fine interstitial pores; 35 percent gravel and 5 percent cobbles; common fine irregular soft masses of secondary carbonates throughout horizon, many distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates throughout matrix; violently effervescent; strongly alkaline; abrupt wavy boundary.

2Bkqm—49 to 52 inches; grayish brown (2.5Y 5/2) weakly cemented duripan that crushes to loamy sand, olive brown (2.5Y 4/4) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine interstitial pores; common distinct coatings of secondary carbonates and silica that are white (10YR 8/1) and brown (7.5YR 4/4) when moist on laminar cap 1 to 2 millimeters thick; violently effervescent; strongly alkaline; clear wavy boundary.

2Cdk—52 to 60 inches; grayish brown (2.5Y 5/2) dense till that crushes to very gravelly loamy sand, dark grayish brown (2.5Y 4/2) moist; massive; very hard, firm, nonsticky and nonplastic; common fine interstitial pores; 35 percent gravel and 10 percent cobbles; common filaments of secondary carbonates in pores and

few distinct coatings of secondary carbonates on rock fragments; violently effervescent; moderately alkaline.

The mollic epipedon is 10 to 16 inches thick. Thickness of the volcanic ash influence is 24 to 37 inches. Depth to secondary carbonates is 18 to 40 inches. Depth to the duripan is 40 to 60 inches. Where present, depth to dense glacial till is 45 to 65 inches. Where present, depth to bedrock is 45 to 65 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist.

The Bw horizon has chroma of 2 or 3 dry. It has 0 to 10 percent gravel. It is ashy sandy loam or ashy fine sandy loam.

The Bk1 horizon has hue of 2.5Y or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 to 4 dry or moist. It has 0 to 10 percent rock fragments. It is ashy sandy loam or ashy fine sandy loam. It is slightly alkaline or moderately alkaline.

The 2Bk2 horizon has hue of 2.5Y or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 to 4 dry or moist. It has 15 to 30 percent rock fragments. It is moderately alkaline or strongly alkaline.

The 2Bk3 horizon has hue of 2.5Y or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 to 4 dry or moist. It has 35 to 50 percent rock fragments. It is very gravelly loamy sand or very gravelly sandy loam. It is moderately alkaline or strongly alkaline.

The matrix of the 2Bkqm horizon has hue of 2.5Y or 10YR, value of 5 or 6 dry and 4 or 5 moist, and chroma of 2 to 4 dry or moist. The horizon is weakly cemented or moderately cemented with carbonates and silica. It crushes to loamy sand, fine sandy loam, gravelly sandy loam, or gravelly fine sandy loam. It is moderately alkaline or strongly alkaline.

The 2Cdk horizon has hue of 2.5Y or 10YR, value of 5 or 6 dry and 4 or 5 moist, and chroma of 3 or 4 dry and 1 to 3 moist. It crushes to very gravelly loamy sand or very cobbly sandy loam. It has 35 to 50 percent rock fragments. It is moderately alkaline or strongly alkaline.

Taunton Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Structural benches
Parent material: Loess over a duripan over basalt
Slope range: 0 to 25 percent
Elevation: 1,200 to 1,600 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Xeric Haplodurids

Typical pedon of Taunton very fine sandy loam in an area of Taunton-Scoon complex, 8 to 15 percent slopes, about 6 miles southeast of Rock Island Dam; about 1,800 feet west and 1,300 feet north of the southeast corner of sec. 36, T. 21 N., R. 22 E. (lat. 47°15'40" N., long. 120°01'15" W.)

Ap—0 to 9 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and medium interstitial pores; slightly alkaline; clear wavy boundary.

Bw—9 to 20 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak fine prismatic structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; slightly alkaline; gradual wavy boundary.

Bk—20 to 29 inches; grayish brown (10YR 5/2) very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; few fine filaments of secondary carbonates in pores and disseminated carbonates; slightly effervescent; 5 percent gravel-sized duripan fragments; moderately alkaline; abrupt wavy boundary.

2Bkqm1—29 to 33 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are white (7.5YR 8/1) when dry on duripan surfaces; violently effervescent; clear wavy boundary.

2Bkqm2—33 to 53 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—53 inches; basalt.

Depth to the duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The Ap horizon has value of 3 or 4 moist and 5 or 6 dry and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam, loam, or silt loam.

The Bk horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam, loam, or silt loam. It has 0 to 15 percent gravel-sized duripan fragments.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Terlan Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess over a duripan over basalt
Slope range: 0 to 8 percent
Elevation: 2,000 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Argiduridic Durixerolls

Typical pedon of Terlan silt loam, 0 to 8 percent slopes, about 6 miles southeast of Withrow; about 1,600 feet north and 3,850 feet east of the southwest corner of sec. 36, T. 25 N., R. 24 E. (lat. 47°37'02" N., long. 119°45'13" W.)

Ap—0 to 5 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; many very fine and fine roots; few fine interstitial pores; slightly acid; abrupt wavy boundary.

A—5 to 8 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine and very fine interstitial pores; neutral; abrupt smooth boundary.

2Bt—8 to 15 inches; light yellowish brown (10YR 6/4) gravelly loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; very hard, firm,

slightly sticky and slightly plastic; many very fine and fine roots; common fine interstitial pores; few faint clay films on faces of peds and rock fragments; 20 percent gravel and gravel-sized duripan fragments; neutral; clear wavy boundary.

2Bkq—15 to 18 inches; light gray (10YR 7/1) gravelly loam, pale brown (10YR 6/3) moist; massive; very hard, very firm, nonsticky and slightly plastic; common very fine and fine roots; few fine interstitial pores; many distinct continuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on duripan fragments, and disseminated carbonates; 20 percent gravel and gravel-sized duripan fragments; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm1—18 to 22 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are very pale brown (10YR 8/2) when dry on fracture surfaces; violently effervescent; clear wavy boundary.

2Bkqm2—22 to 27 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—27 inches; basalt.

The mollic epipedon is 7 to 12 inches thick. The particle-size control section has 18 to 27 percent clay and 15 to 35 percent rock fragments and duripan fragments. Depth to the duripan is 10 to 20 inches. Depth to bedrock is 20 to 40 inches.

The A horizon has chroma of 2 or 3 dry or moist.

The 2Bt horizon has value of 3 or 4 moist. It is gravelly loam or gravelly silt loam.

The 2Bkq horizon has value of 6 or 7 dry and chroma of 1, 2, or 3 dry or moist. It is gravelly loam or gravelly silt loam.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Timentwa Series

Soil depth: Deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess and volcanic ash over glacial till over a duripan over dense glacial till or basalt
Slope range: 0 to 70 percent
Elevation: 1,300 to 3,200 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 110 to 170 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Haploxerolls

Typical pedon of Timentwa ashy fine sandy loam, 8 to 15 percent slopes, about 12 miles northeast of Leahy Junction; about 1,900 feet north and 900 feet east of the southwest corner of sec. 6, T. 29 N., R. 29 E. (lat. 48°02’23” N., long. 119°13’46" W.)

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; 5 percent coarse and very coarse sand-sized volcanic ash; common very fine interstitial pores; neutral; abrupt smooth boundary.

A1—8 to 17 inches; dark grayish brown (10YR 4/2) ashy loam, very dark brown (10YR 2/2) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular and interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel and 1 percent cobbles; slightly alkaline; clear smooth boundary.

A2—17 to 27 inches; grayish brown (10YR 5/2) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular and interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; slightly alkaline; abrupt wavy boundary.

2Bk1—27 to 43 inches; grayish brown (10YR 5/2) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse and very coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores and common very fine and few fine interstitial pores; many fine filaments of secondary carbonates in pores, few distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 5 percent cobbles; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bk2—43 to 51 inches; light brownish gray (2.5Y 6/2) gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; moderate very coarse and coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine and few fine tubular pores; many fine filaments of secondary carbonates in pores, many fine irregular soft masses of secondary carbonates throughout horizon, common distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates; 15 percent gravel and 5 percent cobbles; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—51 to 52 inches; light gray (10YR 7/1) weakly cemented duripan that crushes to cobbly sandy loam, olive brown (2.5Y 4/4) moist; massive; very hard, very firm, nonsticky and nonplastic; common very fine tubular pores and few fine interstitial pores; many distinct coatings of secondary carbonates and silica that are pinkish white (7.5YR 8/2) when dry and few distinct coatings of secondary carbonates and silica that are dark reddish brown (5YR 3/4) when dry on laminar cap; common fine filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on rock fragments; violently effervescent; 10 percent gravel and 15 percent cobbles; moderately alkaline; abrupt wavy boundary.

2Cdk—52 to 60 inches; light gray (10YR 7/1) dense till that crushes to cobbly sandy loam, olive brown (2.5Y 4/4) moist; massive; very hard, very firm, nonsticky and nonplastic; common very fine tubular pores and few fine interstitial pores; common fine filaments of secondary carbonates in pores, common fine irregular soft masses of secondary carbonates throughout matrix, common distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates; violently effervescent; 15 percent cobbles and 10 percent gravel; moderately alkaline.

The mollic epipedon is 20 to 30 inches thick. Thickness of the volcanic ash influence is 20 to 30 inches. Depth to secondary carbonates is 22 to 44 inches. Depth to the duripan is 40 to 60 inches. Where present, depth to the dense glacial till or bedrock is 45 to 65 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The 2Bk horizon has hue of 10YR or 2.5Y, value of 4 to 7 dry and 3 to 5 moist, and chroma of 2 to 4 dry or moist. It is gravelly, very gravelly, or cobbly fine sandy loam, coarse sandy loam, sandy loam, or loam. It is slightly alkaline to very strongly alkaline.

The 2Bkqm horizon has hue 7.5YR, 10YR, or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 1 to 4 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. It is gravelly, very gravelly, cobbly, or very cobbly fine sandy loam, sandy loam, or loam. It crushes to moderately alkaline to very strongly alkaline.

The 2Cdk horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 7 dry and 2.5 to 4 moist, and chroma of 1 or 2 dry and 1 to 4 moist. It crushes to gravelly, very gravelly, cobbly, or very cobbly sandy loam, coarse sandy loam, or loamy coarse sand. It is moderately alkaline or strongly alkaline.

Timmerman Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Terraces
Parent material: Eolian deposits mixed with sandy glacial outwash
Slope range: 0 to 15 percent
Elevation: 1,300 to 1,400 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Sandy, mixed, mesic Xeric Haplocambids

Typical pedon of Timmerman coarse sandy loam, 3 to 8 percent slopes, about 1 mile north of Trinidad; about 2,050 feet east and 50 feet north of the southwest corner of sec. 1, T. 20 N., R. 22 E. (lat. 47°14'45" N., long. 120°01'05" W.)

Ap—0 to 9 inches; pale brown (10YR 6/3) coarse sandy loam, brown (10YR 4/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common medium interstitial pores; slightly alkaline; clear wavy boundary.

Bw—9 to 20 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few fine and medium interstitial pores; slightly alkaline; gradual wavy boundary.

2Bk—20 to 60 inches; light brownish gray (10YR 6/2) coarse sand, grayish brown (10YR 5/2) moist; single grain; loose; few very fine roots to a depth of about 32 inches; 5 percent gravel; disseminated carbonates; slightly effervescent; moderately alkaline.

The particle-size control section averages loamy sand. Depth to coarse sand and carbonates (2Bk horizon) is 13 to 25 inches.

The Ap horizon has value of 6 or 7 dry and 4 or 5 moist and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 6 or 7 dry and 4 or 5 moist and chroma of 2 to 4 dry or moist. It is coarse sandy loam, fine sandy loam, or sandy loam. It is neutral or slightly alkaline.

The 2Bk horizon has value of 3 to 7 dry and 2 to 5 moist and chroma of 1 to 3 dry or moist. It is coarse sand, loamy coarse sand, or gravelly coarse sand. It has 5 to 20 percent rock fragments. It is slightly alkaline to strongly alkaline.

Titchenal Series

Soil depth: Deep
Drainage class: Well drained
Landform: North aspects of nonglaciated plateaus
Parent material: Loess over older loess over a duripan
Slope range: 3 to 15 percent
Elevation: 2,500 to 3,400 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Pachic Ultic Argixerolls

Typical pedon of Titchenal silt loam in an area of Broadax-Titchenal complex, 3 to 15 percent slopes, on Badger Mountain about 15 miles southwest of Waterville; about 1,000 feet north and 900 feet east of the southwest corner of sec. 15, T. 23 N., R. 21 E. (lat. 47°28'18" N., long. 120°11'35" W.)

Ap—0 to 10 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; strong coarse subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine interstitial pores and few fine tubular pores; neutral; clear smooth boundary.

A1—10 to 15 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; few fine interstitial and tubular pores; neutral; clear smooth boundary.

A2—15 to 20 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; few very fine interstitial pores and few fine tubular pores; neutral; clear wavy boundary.

Bt1—20 to 38 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few fine interstitial and tubular pores; few faint clay films on faces of peds; neutral; gradual smooth boundary.

Bt2—38 to 57 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; few fine tubular pores; few faint clay films on faces of peds; slightly alkaline; abrupt wavy boundary.

2Bkqm—57 to 60 inches; yellowish brown (10YR 5/4) moderately cemented duripan that crushes to gravelly sandy loam, brown (10YR 4/3) moist; massive; extremely hard, very firm, nonsticky and nonplastic; few fine interstitial pores; common fine filaments of secondary carbonates in pores, common distinct coatings of secondary carbonates on faces of peds, and disseminated carbonates; 30 percent gravel-sized duripan fragments; violently effervescent; moderately alkaline.

The mollic epipedon is 20 to 25 inches thick. The particle-size control section has 10 to 18 percent clay and less than 15 percent fine sand or coarser. Depth to the duripan is 40 to 60 inches.

The A horizon has value of 2 or 3 moist and chroma of 2 or 3 dry or moist. It is slightly acid or neutral.

The Bt horizon has value of 3 or 4 moist and chroma of 3 or 4 moist. It is neutral or slightly alkaline, increasing with depth.

The 2Bkqm horizon is weakly cemented or moderately cemented with carbonates and silica. It is gravelly sandy loam, gravelly loam, very gravelly silt loam, or very gravelly fine sandy loam.

Toler Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over basalt
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Vitritorrandic Argixerolls

Typical pedon of Toler ashy fine sandy loam, 0 to 8 percent slopes, about 4 miles northwest of Farmer; about 50 feet east and 400 feet south of the northwest corner of sec. 24, T. 25 N., R. 23 E. (lat. 47°39'02" N., long. 119°53'50" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine and few medium roots; common fine and very fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; slightly acid; gradual wavy boundary.

A—8 to 13 inches; brown (10YR 5/3) ashy fine sandy loam, very dark brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine and fine interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual smooth boundary.

2Bt1—13 to 22 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium prismatic structure; hard, firm, slightly sticky and slightly plastic; few fine and very fine roots; common very fine and fine interstitial pores; few faint clay films on faces of peds and few distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 5 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; gradual wavy boundary.

2Bt2—22 to 30 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; extremely hard, firm, slightly sticky and slightly plastic; common fine and very fine roots; common very fine and fine interstitial pores; few faint clay films on faces of peds and few distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; 2 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel; slightly alkaline; gradual smooth boundary.

2Btk—30 to 32 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; extremely hard, firm, slightly sticky and slightly plastic; few fine and very fine tubular pores; few faint clay films on faces of peds and common distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments; common distinct coatings of secondary carbonates on faces of peds and rock fragments and common fine and medium irregular soft masses of secondary carbonates throughout matrix; 10 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

3R—32 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence is 10 to 16 inches. The particle-size control section has 18 to 27 percent clay and averages 5 to 30 percent rock fragments. Depth to secondary carbonates is 19 to 35 inches. Depth to bedrock is 20 to 40 inches.

The A horizon has chroma of 2 to 4 dry and 2 or 3 moist. It is ashy fine sandy loam or ashy silt loam.

The 2Bt horizon has value of 4 or 5 moist and chroma of 3 or 4 dry and 2 to 4 moist. It is silt loam or clay loam. It is neutral or slightly alkaline.

The 2Btk horizon has value of 4 to 6 dry and 3 to 5 moist and chroma of 3 or 4 dry or moist. It is silt loam, gravelly clay loam, or very gravelly clay loam. It has 10 to 60 percent rock fragments. It is slightly alkaline or moderately alkaline.

Torriorthents

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Scarp slopes of plateaus and terraces
Parent material: Glacial outwash or colluvium derived from granite
Slope range: 25 to 70 percent
Elevation: 600 to 2,200 feet
Mean annual precipitation: 7 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 140 to 190 days

Taxonomic classification: Torriorthents

Representative pedon of Torriorthents, very steep, about 4 miles south of Rock Island Dam; about 2,500 feet east and 1,300 feet south of the northwest corner of sec. 28, T. 21 N., R. 22 E. (lat. 47°17'25" N., long. 120°05'05" W.)

A—0 to 10 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; many very fine roots; many fine and medium interstitial pores; 20 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary
2C—10 to 60 inches; multicolored very cobbly coarse sand; single grain; loose, nonsticky and nonplastic; 20 percent cobbles, 20 percent gravel, 10 percent stones, and 5 percent boulders; neutral.

Depth to the 2C horizon is 10 to 14 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry and 2 or 3 moist. It is gravelly fine sandy loam or very cobbly coarse sandy loam.

The fine-earth fraction of the 2C horizon is sand, coarse sand, or very coarse sand. The horizon has 35 to 75 percent rock fragments.

Touhey Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Till plains on glaciated plateaus
Parent material: Loess and volcanic ash over a duripan over dense glacial till or over dense glacial till over basalt
Slope range: 0 to 65 percent
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 130 to 185 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Durixerolls

Typical pedon of Touhey ashy fine sandy loam (fig. 25) in an area of Touhey complex, 0 to 8 percent slopes, about 0.75 mile southeast of Mansfield; about 800 feet west and 1,300 feet north of the southeast corner of sec. 25, T. 27 N., R. 25 E. (lat. 47°48'18" N., long. 119°37'19" W.)

Ap—0 to 5 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; abrupt wavy boundary.

A—5 to 12 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 10 percent gravel; neutral; clear wavy boundary.

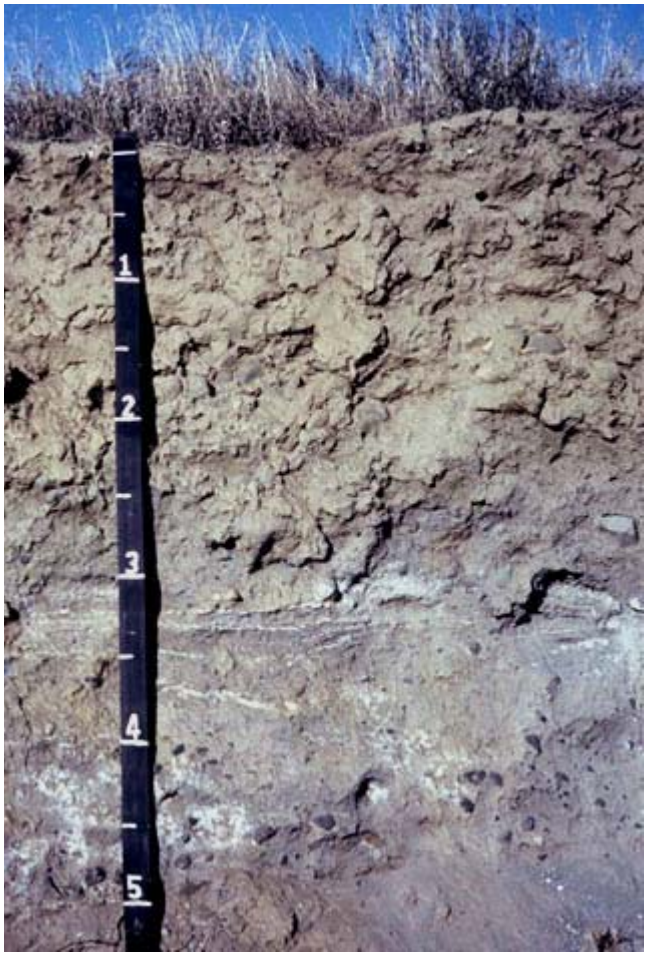


Figure 25.—Profile of a Touhey ashy fine sandy loam. The duripan is at a depth of about 36 inches. It is underlain by glacial till. Numerals on the tape are in feet.

Bw1—12 to 21 inches; yellowish brown (10YR 5/4) gravelly ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 5 percent cobbles; clear wavy boundary.

2Bw2—21 to 30 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine and fine interstitial and tubular pores; 20 percent gravel and 10 percent cobbles; slightly alkaline; clear wavy boundary.

2Bk—30 to 38 inches; light gray (10YR 7/2) gravelly sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, nonsticky and nonplastic; common very fine roots; few very fine tubular pores; few fine filaments of secondary carbonates in pores, many distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates; 25 percent gravel, 5 percent cobbles, and 3 percent stones; violently effervescent; strongly alkaline; abrupt wavy boundary.

2Bkqm—38 to 40 inches; light gray (10YR 7/1) weakly cemented duripan that crushes to very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; common coatings of secondary carbonates and silica that are white (10YR 8/2) and brown (7.5YR 4/4) when moist on laminar cap; few fine filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on horizontal fracture surfaces and on rock fragments; 35 percent gravel and 5 percent cobbles; violently effervescent; strongly alkaline; gradual wavy boundary.

2Cdk—40 to 60 inches; light brownish gray (2.5Y 6/2) dense till that crushes to very gravelly sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; few fine tubular and interstitial pores; few fine filaments of secondary carbonates in pores and few distinct coatings of secondary carbonates on rock fragments; 35 percent gravel, 5 percent cobbles, and 5 percent stones; strongly effervescent; moderately alkaline.

The mollic epipedon is 10 to 19 inches thick. The volcanic ash influence is 15 to 24 inches thick. The lower part of the particle-size control section has 20 to 35 percent rock fragments. Depth to the duripan is 20 to 40 inches. The duripan is underlain by dense glacial till at a depth of 22 to 45 inches. Where present, depth to bedrock is 30 to 60 inches.

The Ap horizon has chroma of 2 or 3 moist. It is moderately acid to slightly alkaline.

The A horizon has chroma of 2 or 3 dry or moist. It is ashy fine sandy loam or ashy very fine sandy loam. It has 5 to 15 percent gravel. It is neutral or slightly alkaline.

The Bw1 horizon has value of 4 or 5 dry and chroma of 2 to 4 moist or dry. The fine-earth fraction is ashy fine sandy loam, ashy very fine sandy loam, or ashy sandy loam. The horizon has 10 to 25 percent rock fragments.

The 2Bw2 horizon has value of 4 to 6 dry and 3 to 5 moist and chroma of 1 to 4 dry or moist. The fine-earth fraction is fine sandy loam or sandy loam. The horizon has 20 to 35 percent rock fragments.

The 2Bk horizon has hue of 2.5Y or 10YR, value of 5 to 7 dry and 3 to 5 moist, and chroma of 1 or 2 dry or moist. The fine-earth fraction is sandy loam or fine sandy loam. The horizon has 20 to 35 percent rock fragments. It is slightly alkaline to strongly alkaline.

The 2Bkqm horizon has hue of 7.5YR, 10YR, or 2.5YR, value of 4 to 8 dry and 4 or 5 moist, and chroma of 1 to 4 dry or moist. It is weakly cemented or moderately cemented with carbonates and silica. The fine-earth fraction is fine sandy loam or sandy loam. The horizon has 20 to 35 percent rock fragments.

The 2Cdk horizon has hue of 2.5Y or 10YR, value of 5 to 7 dry and 4 or 5 moist, and chroma of 1 or 2 dry or moist. The fine-earth fraction is fine sandy loam or sandy loam. The horizon has 25 to 45 percent rock fragments. It is moderately alkaline or strongly alkaline.

Tubspring Series

Soil depth: Very deep
Drainage class: Somewhat excessively drained
Landform: Terraces, kames, and eskers on glaciated plateaus
Parent material: Loess and volcanic ash over glacial outwash
Slope range: 0 to 30 percent
Elevation: 1,200 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitritorrandic Haploxerolls

Typical pedon of Tubspring ashy fine sandy loam (fig. 26) in an area of Tubspring-DelRio-Strat complex, 0 to 8 percent slopes, about 3.5 miles northeast of Withrow; about 1,900 feet south of the northeast corner of sec. 15, T. 26 N., R. 24 E. (lat. 47°45'08" N., long. 119°47'28" W.)

Ap—0 to 12 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common



Figure 26.—Profile of a Tubspring ashy fine sandy loam. Loess and volcanic ash over glacial outwash is at a depth of about 30 inches. Numerals on the tape are in feet.

very fine vesicular pores and very fine and fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 1 percent cobbles; neutral; clear wavy boundary.

A—12 to 20 inches; brown (10YR 5/3) ashy sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; common very fine vesicular pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 1 percent cobbles; neutral; gradual smooth boundary.

2AB—20 to 31 inches; brown (10YR 5/3) gravelly loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine roots; many fine vesicular pores; 15 percent gravel and 5 percent cobbles; neutral; abrupt smooth boundary.

2Bk—31 to 60 inches; multicolored extremely gravelly coarse sand; single grain; loose, nonsticky and nonplastic; many distinct coatings of secondary carbonates, strongly effervescent, and few distinct silica coatings that are very pale brown (10YR 7/3) and light yellowish brown (10YR 6/4) when moist on underside of rock fragments; 45 percent gravel and 20 percent cobbles; slightly alkaline.

The mollic epipedon is 10 to 20 inches thick. The volcanic ash influence is 14 to 37 inches thick. The lower part of the particle-size control section has 40 to 70 percent rock fragments. Depth to the sandy-skeletal material and secondary carbonates (2Bk horizon) is 14 to 37 inches.

The Ap horizon has chroma of 2 to 4 dry and 2 or 3 moist. It has 0 to 10 percent gravel and 0 to 5 percent cobbles. It is fine sandy loam or ashy fine sandy loam.

The A horizon has chroma of 2 to 4 dry. It is fine sandy loam, sandy loam, gravelly fine sandy loam, gravelly ashy fine sandy loam, ashy fine sandy loam, or ashy sandy loam. It has 0 to 20 percent gravel and 0 to 5 percent cobbles. It is neutral or slightly alkaline.

The 2AB horizon has value of 5 or 6 dry and chroma of 2 to 4 dry. It is gravelly loamy sand, gravelly loamy coarse sand, or cobbly loamy sand. It averages 15 to 30 percent rock fragments by volume. It is neutral or slightly alkaline.

The 2Bk horizon is very gravelly sand, extremely gravelly coarse sand, very cobbly coarse sand, or extremely cobbly coarse sand. It averages 40 to 70 percent rock fragments by volume. It is slightly alkaline to very strongly alkaline. It has 1 to 10 percent calcium carbonate equivalent.

The Tubspring soils in detailed soil map units 346, 373, and 375 are a taxadjunct to the Tubspring series. The soils in these units do not have an ashy surface mantle. They are classified as coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls.

Van Nostern Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over basalt
Slope range: 3 to 30 percent
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Fine-silty, mixed, superactive, mesic Pachic Argixerolls

Typical pedon of Van Nostern silt loam, 3 to 8 percent slopes, about 1 mile west of Waterville; about 1,000 feet west and 800 feet north of the southwest corner of sec. 20, T. 25 N., R. 22 E. (lat. 47°38'35" N., long. 120°06'20" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine and fine interstitial and vesicular pores; neutral; gradual wavy boundary.

A1—8 to 16 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; few very fine and fine interstitial and vesicular pores; neutral; gradual wavy boundary.

A2—16 to 28 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; few very fine roots; few very fine and fine interstitial and vesicular pores; neutral; clear wavy boundary.

Bt1—28 to 34 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium and coarse prismatic structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many fine and medium interstitial pores; many distinct clay films on faces of peds; slightly alkaline; gradual wavy boundary.

Bt2—34 to 38 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; few very fine roots; few fine and medium interstitial pores; few distinct clay films on faces of peds; slightly alkaline; abrupt wavy boundary.

2R—38 inches; basalt.

The mollic epipedon is 20 to 28 inches thick. The particle-size control section has 18 to 27 percent clay and less than 15 percent fine sand or coarser. Depth to bedrock is 20 to 40 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist.

Vitrandic Argixerolls

Soil depth: Moderately deep to very deep
Drainage class: Well drained
Landform: North aspects of nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over colluvium and residuum derived from basalt
Slope range: 30 to 60 percent
Elevation: 1,600 to 3,200 feet
Mean annual precipitation: 11 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 170 days

Taxonomic classification: Vitrandic Argixerolls

Representative pedon of Vitrandic Argixerolls ashy silt loam in an area of Vitrandic Argixerolls-Argabak complex, 30 to 60 percent slopes, about 1.75 miles west-northwest of Highway 2 and Moses Coulee; about 900 feet west and 1,850 feet north of the southeast corner of sec. 5, T. 24 N., R. 25 E. (lat. 47°36'15" N., long. 119°42'27" W.)

A1—0 to 4 inches; grayish brown (10YR 5/2) ashy silt loam, very dark grayish brown

(10YR 3/2) moist; weak and moderate medium subangular blocky structure parting to weak fine and very fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular and interstitial pores; 7 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel; neutral; abrupt smooth boundary.

A2—4 to 12 inches; brown (10YR 5/3) ashy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure parting to moderate fine and medium and weak fine subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; 13 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel; neutral; clear smooth boundary.

A3—12 to 17 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium and weak fine subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine tubular pores; 15 percent coarse and very coarse sand-sized volcanic ash; 1 percent gravel; slightly alkaline; clear smooth boundary.

BA—17 to 25 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse and very coarse subangular blocky structure parting to moderate medium and weak fine subangular blocky; slightly hard, very friable, nonsticky and slightly plastic; common very fine and few fine roots throughout matrix and common very fine roots matted around rock fragments; common very fine and few fine tubular pores; 17 percent coarse and very coarse sand-sized volcanic ash; 3 percent gravel and 3 percent cobbles; slightly alkaline; clear smooth boundary.

Bw—25 to 31 inches; brown (10YR 5/3) gravelly ashy silt loam, dark brown (10YR 3/3) moist; moderate coarse and very coarse subangular blocky structure parting to moderate fine and medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots throughout matrix and common very fine roots matted around rock fragments; common very fine tubular pores; 7 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.

2Bt—31 to 37 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and moderately plastic; common very fine and few fine roots throughout matrix and common very fine roots matted around rock fragments; common very fine tubular pores; few distinct continuous clay films that are dark brown (10YR 3/3) when moist and common distinct discontinuous clay films that are brown (10YR 4/3) when moist on faces of peds; common faint discontinuous clay films that are brown (10YR 4/3) when moist on rock fragments; 15 percent gravel and 30 percent cobbles; slightly alkaline; abrupt wavy boundary.

3Btk1—37 to 53 inches; brown (10YR 4/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, friable, slightly sticky and moderately plastic; common very fine and few fine roots; common very fine tubular and interstitial pores; few distinct continuous clay films that are dark brown (10YR 3/3) when moist and common distinct discontinuous clay films that are brown (10YR 4/3) when moist on faces of peds; common distinct discontinuous clay films that are brown (10YR 4/3) when moist on upper surface of rock fragments; common distinct continuous coatings of secondary carbonates on horizontal faces of peds and on lower surface of peds and rock fragments, violently effervescent; 35 percent gravel and 15 percent cobbles; moderately alkaline; abrupt wavy boundary.

3Btk2—53 to 57 inches; 50 percent dark olive brown (2.5Y 3/3) and 50 percent olive

brown (2.5Y 4/3) very gravelly clay, olive brown (2.5Y 4/3) moist; moderate medium and coarse subangular blocky structure parting to moderate fine and medium subangular and angular blocky; hard, friable, slightly sticky and moderately plastic; common very fine roots; common very fine tubular pores; many distinct continuous clay films that are brown (10YR 4/3) when moist on vertical faces of peds and few distinct clay films that are yellowish brown (10YR 5/4) when dry on rock fragments not covered by coatings of secondary carbonates; many distinct continuous coatings of secondary carbonates on upper and lower surfaces of peds and rock fragments, violently effervescent; 50 percent gravel and 5 percent cobbles; moderately alkaline; abrupt wavy boundary.

4R—57 inches; basalt.

The mollic epipedon is 10 to 30 inches thick. The volcanic ash influence is 10 to 39 inches thick. The particle-size control section has 14 to 50 percent clay. Individual horizons have 30 to 60 percent rock fragments. Depth to bedrock is 20 to 80 inches.

The A1 horizon has chroma of 2 or 3 dry. It is ashy silt loam or very stony ashy fine sandy loam.

The A2, A3, and BA horizons have chroma of 2 or 3 moist. They are ashy loam, ashy silt loam, ashy fine sandy loam, gravelly ashy fine sandy loam, cobbly ashy loam, or very cobbly ashy fine sandy loam. They are neutral or slightly alkaline.

The Bw horizon has value of 3 or 4 moist and chroma of 2 or 3 moist. It is gravelly ashy silt loam, gravelly ashy loam, or cobbly ashy silt loam. It is neutral or slightly alkaline.

The 2Bt horizon has value of 3 or 4 moist and chroma of 3 or 4 dry and 2 or 3 moist. It is very cobbly loam, cobbly silt loam, very cobbly silt loam, very cobbly loam, gravelly loam, or very gravelly silt loam. It is neutral or slightly alkaline.

The 3Btk horizon has hue of 10YR or 2.5Y, value of 4 or 5 dry and 2, 3, or 4 moist, and chroma of 3 or 4 dry and 2 or 3 moist. It is very gravelly clay loam, very gravelly clay, very gravelly sandy clay loam, very cobbly clay loam, very cobbly clay, very cobbly sandy clay loam, or very cobbly loam. It is neutral to strongly alkaline.

Wagberg Series

Soil depth: Deep
Drainage class: Well drained
Landform: Glaciated plateaus
Parent material: Loess mixed with volcanic ash over glacial till over granite
Slope range: 3 to 65 percent
Elevation: 1,400 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls

Typical pedon of Wagberg very cobbly ashy sandy loam in an area of Conconully-Wagberg complex, 8 to 15 percent slopes, about 8 miles north of Leahy Junction; about 2,640 feet south of the northeast corner of sec. 4, T. 29 N., R. 27 E. (lat. 48°02'30" N., long. 119°25'30" W.)

Ap—0 to 9 inches; brown (10YR 5/3) very cobbly ashy sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash; 15 percent gravel and 20 percent cobbles; neutral; clear wavy boundary.

2Bw—9 to 26 inches; yellowish brown (10YR 5/4) very cobbly coarse sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; 20 percent gravel and 25 percent cobbles; neutral; abrupt smooth boundary.
2C1—26 to 38 inches; light gray (5Y 7/2) very cobbly coarse sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; 15 percent gravel, 25 percent cobbles, and 15 percent stones; neutral; gradual wavy boundary.
2C2—38 to 48 inches; light gray (5Y 7/2) very cobbly coarse sandy loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, nonsticky and nonplastic; many very fine interstitial pores; 15 percent gravel, 25 percent cobbles, and 10 percent stones; neutral; abrupt smooth boundary.
3R—48 inches; granite.

The mollic epipedon is 7 to 14 inches thick. The volcanic ash influence is 7 to 14 inches thick. The particle-size control section averages 35 to 60 percent rock fragments. Depth to bedrock is 40 to 60 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1 to 3 dry or moist.

The 2Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 to 4 dry or moist. It is very cobbly or very gravelly coarse sandy loam or very cobbly sandy loam.

The 2C horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 4 or 5 moist, and chroma of 2 to 4 dry or moist. It is very cobbly or very gravelly coarse sandy loam or very cobbly sandy loam.

Wanapum Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Fans on nonglaciated plateaus
Parent material: Gravelly colluvium over a duripan over basalt
Slope range: 5 to 15 percent
Elevation: 1,600 to 1,800 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 135 to 195 days

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic, shallow Xeric Argidurids

Typical pedon of Wanapum cobbly loam in an area of Drysel-Wanapum complex, 5 to 15 percent slopes, about 6 miles northeast of Palisades; about 1,300 feet south and 400 feet west of the northeast corner of sec. 21, T. 23 N., R. 24 E. (lat. 47°28’20” N., long. 119°48’50” W.)

Ap—0 to 6 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; few fine roots; few fine interstitial pores; 3 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel, 5 percent gravel-sized duripan fragments, and 20 percent cobbles; very slightly effervescent; slightly alkaline; clear wavy boundary.
Bt1—6 to 10 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine and few

fine tubular pores; few faint clay films on faces of peds; disseminated carbonates; 3 percent coarse and very coarse sand-sized volcanic ash; 25 percent gravel, 10 percent gravel-sized duripan fragments, and 5 percent cobbles; moderately alkaline; strongly effervescent; clear wavy boundary.

Btk—10 to 15 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; common faint clay films on faces of peds and few distinct clay films that are pale brown (10YR 6/3) when dry on rock fragments; few fine filaments of secondary carbonates in pores, common distinct coatings of secondary carbonates on rock fragments, and disseminated carbonates; 3 percent coarse and very coarse sand-sized volcanic ash; 20 percent gravel, 10 percent gravel-sized duripan fragments, and 10 percent cobbles; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm1—15 to 20 inches; indurated duripan cemented with secondary carbonates and silica and with cobbles and gravel encased within the matrix; many continuous coatings of secondary carbonates and silica that are pinkish white (7.5YR 8/2) when dry on duripan surfaces, violently effervescent; few prominent coatings of secondary silica that are yellow (2.5Y 7/6) when dry on duripan surfaces; gradual wavy boundary.

3Bkqm2—20 to 30 inches; stratified layers of weakly cemented and moderately cemented very cobbly and very gravelly old alluvium interspersed with layers of very cobbly and very gravelly fine sandy loam; abrupt wavy boundary.

4R—30 inches; basalt.

The particle-size control section averages 18 to 35 percent clay and 35 to 50 percent coarse fragments. Depth to the duripan is 10 to 20 inches. Depth to bedrock is 20 to 40 inches.

The Ap horizon has value of 4 to 6 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bt and Btk horizons have value of 4 to 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. They are very gravelly loam, very gravelly clay loam, or very cobbly clay loam. They are slightly alkaline or moderately alkaline. They have 0 to 5 percent calcium carbonate equivalent.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Warden Series

Soil depth: Very deep
Drainage class: Well drained
Landform: Terraces in Moses Coulee
Parent material: Loess over glaciolacustrine deposits
Slope range: 3 to 8 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: 7 to 9 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 200 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Xeric Haplocambids

Typical pedon of Warden very fine sandy loam, 3 to 8 percent slopes, about 5 miles southwest of Palisades; about 1,200 feet south and 1,500 feet west of the northeast corner of sec. 32, T. 22 N., R. 23 E. (lat. 47°21’30” N., long. 120°57’40” W.)

Ap—0 to 10 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common fine interstitial pores; slightly alkaline; clear wavy boundary.
Bw1—10 to 21 inches; pale brown (10YR 6/3) silt loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; slightly alkaline; clear wavy boundary.
Bw2—21 to 30 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; moderately alkaline; clear wavy boundary.
2Bk—30 to 33 inches; gray (10YR 6/1) silt loam, dark brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; many fine filaments of secondary carbonates in pores and common fine and medium platelike soft masses of secondary carbonates on horizontal faces of peds; violently effervescent; moderately alkaline; clear wavy boundary.
2C—33 to 60 inches; gray (10YR 6/1) very fine sandy loam with lenses of silt loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; disseminated carbonates; strongly effervescent; moderately alkaline.

The particle-size control section has less than 15 percent fine sand or coarser. Depth to secondary carbonates is 20 to 38 inches.

The Ap horizon has value of 3 or 4 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 3 or 4 moist and chroma of 2 or 3 dry and 3 or 4 moist.

The 2Bk and 2C horizons have value of 4 or 5 moist and chroma of 1 to 3 dry or moist. They are very fine sandy loam or silt loam and typically are stratified.

Watco Series

Soil depth: Deep and very deep
Drainage class: Well drained
Landform: North aspects of glaciated plateaus
Parent material: Loess and volcanic ash over glacial till
Slope range: 3 to 60 percent
Elevation: 1,700 to 3,200 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 46 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy, glassy, mesic Vitrandic Haploxerolls

Typical pedon of Watco very bouldery ashy fine sandy loam in an area of Watco-Dezellem-Timentwa complex, 3 to 35 percent slopes, about 5.5 miles south of Wells Dam; about 1,200 feet south and 1,000 feet east of the northwest corner of sec. 6, T. 27 N., R. 24 E. (lat. 47°52'05" N., long. 119°52'20" W.)

A1—0 to 4 inches; grayish brown (10YR 5/2) very bouldery ashy fine sandy loam, very dark gray (10YR 3/1) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; few very fine interstitial pores; 15 percent coarse and very coarse sand-sized

volcanic ash; 15 percent gravel, 10 percent cobbles, and 10 percent surface boulders; neutral; gradual wavy boundary.

A2—4 to 13 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; common very fine, fine, and medium interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; slightly alkaline; gradual wavy boundary.

BA—13 to 22 inches; pale brown (10YR 6/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; common very fine, fine, and medium interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; slightly alkaline; gradual wavy boundary.

Bw—22 to 47 inches; pale brown (10YR 6/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel and 5 percent cobbles; slightly alkaline; clear wavy boundary.

2C—47 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; single grain; soft, friable, nonsticky and nonplastic; few very fine roots; few coarse interstitial pores; 50 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline.

The mollic epipedon is 10 to 30 inches thick. The volcanic ash influence is 40 to 60 inches thick. The particle-size control section has 5 to 15 percent gravel and cobbles. Depth to the loamy-skeletal material (2C horizon) is 40 to 60 inches. Where present, depth to dense glacial till is 50 to 60 inches.

The A horizon has value of 4 or 5 dry and chroma of 1 to 3 dry and 1 or 2 moist. It is ashy fine sandy loam or very bouldery ashy fine sandy loam. It is neutral or slightly alkaline.

The BA horizon has value of 5 or 6 dry and chroma of 2 or 3 moist. It is ashy fine sandy loam or ashy sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2 or 3 dry or moist. It is ashy coarse sandy loam, ashy sandy loam, or ashy fine sandy loam. It is neutral or slightly alkaline.

The 2C horizon has value of 5 or 6 dry. It is extremely gravelly sandy loam or very gravelly loam. It is slightly alkaline or moderately alkaline.

Waterflat Series

Soil depth: Very deep
Drainage class: Poorly drained
Landform: Drainageways and swales of nonglaciated plateaus
Parent material: Loess and volcanic ash over old alluvium
Slope range: 0 to 3 percent
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 12 to 15 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy, glassy, mesic Aquandic Endoaquolls

Typical pedon of Waterflat ashy fine sandy loam, 0 to 3 percent slopes,

about 4.5 miles northeast of Waterville; about 1,400 feet west and 2,350 feet north of the southeast corner of sec. 36, T. 26 N., R. 22 E. (lat. 47°42'24" N., long. 120°00'43" W.)

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) ashy fine sandy loam, brown (10YR 5/3) dry; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine, fine, and medium roots; few fine tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; gradual wavy boundary.

A1—10 to 20 inches; very dark grayish brown (10YR 3/2) ashy loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; few very fine tubular and interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; few fine distinct redoximorphic concentrations that are dark yellowish brown (10YR 4/4) when moist scattered throughout matrix; slightly alkaline; gradual wavy boundary.

A2—20 to 30 inches; very dark grayish brown (10YR 3/2) ashy fine sandy loam, gray (10YR 5/1) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine tubular pores and few very fine interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; few fine distinct redoximorphic concentrations that are dark yellowish brown (10YR 4/4) when moist scattered throughout matrix; slightly alkaline; gradual wavy boundary.

Bk—30 to 43 inches; very dark grayish brown (10YR 3/2) ashy loam, light brownish gray (10YR 6/2) dry; massive; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine tubular pores and few fine interstitial pores; common fine filaments of secondary carbonates in pores and common fine irregular soft masses of secondary carbonates throughout matrix; 15 percent coarse and very coarse sand-sized volcanic ash; common medium and fine faint redoximorphic concentrations that are very dark brown (10YR 2/2) when moist and few fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) when moist scattered throughout matrix; strongly effervescent; slightly alkaline; gradual wavy boundary.

2BCk—43 to 60 inches; very dark grayish brown (10YR 3/2) stratified loam to coarse sand, light brownish gray (10YR 6/2) dry; massive; soft, very friable, nonsticky and slightly plastic; few very fine roots; common very fine tubular pores and few fine interstitial pores; common fine filaments of secondary carbonates in pores and common fine irregular soft masses of secondary carbonates throughout matrix; 2 percent coarse and very coarse sand-sized volcanic ash; few fine faint redoximorphic concentrations that are very dark brown (10YR 2/2) when moist and few fine distinct redoximorphic concentrations that are yellowish brown (10YR 5/6) when moist scattered throughout matrix; 5 percent gravel; strongly effervescent; slightly alkaline.

The mollic epipedon is 24 to 40 inches thick. The volcanic ash influence is 40 to 60 inches thick. Depth to distinct high-chroma redoximorphic concentrations is 10 to 20 inches. Depth to secondary carbonates is 24 to 40 inches. The frequency of flooding is occasional in winter and spring.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1, 2, or 3 dry and 1 or 2 moist. It is moderately acid to neutral.

The A1 horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 1, 2, or 3 dry and 1 or 2 moist. It is ashy fine sandy loam, ashy loam, or ashy silt loam. It is neutral or slightly alkaline.

The A2 horizon has value of 4 or 5 and chroma of 1, 2, or 3 dry. It is ashy fine sandy loam, ashy loam, or ashy silt loam. It is neutral or slightly alkaline.

The Bk horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 2 to 5 moist, and chroma of 1 or 2 dry or moist. It is ashy fine sandy loam, ashy silt loam, or ashy loam. The calcium carbonate equivalent is 1 to 8 percent. The horizon is slightly alkaline or moderately alkaline.

The 2BCk horizon has hue of 10YR, 2.5Y, or 5Y, value of 5, 6, or 7 dry and 3 to 6 moist, and chroma of 1 to 4 dry or moist. The horizon is stratified silty clay loam, clay loam, silt loam, loam, very fine sandy loam, fine sandy loam, loamy fine sand, loamy sand, loamy very fine sand, sand, or coarse sand. The calcium carbonate equivalent is 1 to 8 percent. The horizon is slightly alkaline or moderately alkaline.

Wellsdam Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Terraces
Parent material: Loess and volcanic ash over a duripan over dense glacial till
Slope range: 3 to 65 percent
Elevation: 1,000 to 2,200 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 140 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Durixerolls

Typical pedon of Wellsdam ashy fine sandy loam, 30 to 65 percent slopes, about 1 mile southwest of Brewster; about 1,000 feet south of the center of sec. 23, T. 30 N., R. 24 E. (lat. 48°04'58" N., long. 119°47'30" W.)

A1—0 to 6 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 5 percent gravel; slightly alkaline; gradual wavy boundary.

A2—6 to 18 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; 5 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 5 percent gravel; slightly alkaline; clear wavy boundary.

Bw—18 to 38 inches; light gray (10YR 7/1) ashy fine sandy loam, gray (10YR 6/1) moist; weak medium subangular structure; slightly hard, firm, nonsticky and nonplastic; common very fine and fine roots; common fine and medium interstitial and tubular pores; 10 percent coarse and very coarse sand-sized volcanic ash and 5 percent pumice 2 to 5 millimeters in diameter; 5 percent gravel; slightly alkaline; clear wavy boundary.

2Bkqm—38 to 54 inches; light gray (10YR 7/1) weakly cemented duripan that crushes to cobbly fine sandy loam, gray (10YR 6/1) moist; massive; very hard, extremely firm, nonsticky and nonplastic; few very fine and fine roots matted on top of horizon; few very fine and fine vesicular pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; common fine filaments of secondary carbonates throughout matrix; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Cdk—54 to 60 inches; light gray (10YR 7/1) dense till that crushes to cobbly fine sandy loam, gray (10YR 6/1) moist; massive; slightly hard, firm, nonsticky and

nonplastic; few very fine and fine roots matted around rock fragments; common very fine and fine vesicular and tubular pores; common fine filaments of secondary carbonates in pores and few faint coatings of secondary carbonates on rock fragments; strongly effervescent; 10 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline.

The mollic epipedon is 10 to 18 inches thick. The volcanic ash influence is 20 to 40 inches thick. The particle-size control section has 5 to 20 percent rock fragments. Depth to the duripan is 20 to 40 inches. Depth to dense glacial till is 22 to 55 inches.

The A horizon has chroma of 2 or 3 moist.

The Bw horizon has value of 6 or 7 dry and 3 to 6 moist and chroma of 1 or 2 dry and 1 to 3 moist. It has 5 to 20 percent rock fragments. It is ashy fine sandy loam, ashy very fine sandy loam, or gravelly ashy fine sandy loam.

The 2Bkqm horizon has value of 5 to 7 dry and 5 or 6 moist and chroma of 1 or 2 moist. It is weakly cemented or moderately cemented with carbonates and silica. The fine-earth fraction is fine sandy loam or sandy loam. The horizon has 25 to 35 percent rock fragments. It is slightly alkaline or moderately alkaline.

The 2Cdk horizon has value of 5 or 6 moist. The fine-earth texture is fine sandy loam or sandy loam. The horizon has 30 to 40 percent rock fragments. It is slightly alkaline or moderately alkaline.

Whiteye Series

Soil depth: Shallow
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess mixed with volcanic ash over older loess over a duripan over basalt
Slope range: 0 to 15 percent
Elevation: 1,900 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Loamy, mixed, superactive, mesic, shallow Vitritorrandic Durixerolls

Typical pedon of Whiteye ashy fine sandy loam in an area of Deercut-Aarup-Whiteye complex, 3 to 8 percent slopes, about 8 miles northeast of Waterville; about 150 feet south and 400 feet west of the northeast corner of sec. 2, T. 25 N., R. 23 E. (lat. 47°41’58” N., long. 119°54’00” W.)

Ap—0 to 7 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; few very fine tubular pores and common very fine interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; clear wavy boundary.

2Bt1—7 to 12 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; strong coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and few fine tubular pores and few very fine interstitial pores; very few faint clay films on faces of peds and in pores; few faint clay bridges between sand grains; common faint stress surfaces on faces of peds; neutral; clear smooth boundary.

2Bt2—12 to 18 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure; very hard, friable, slightly sticky and slightly

plastic; few very fine roots; many very fine tubular pores and common very fine interstitial pores; very few faint clay films on faces of peds and in pores; few faint clay bridges between sand grains; common distinct stress surfaces on faces of peds; slightly alkaline; abrupt wavy boundary.

3Bkqm1—18 to 22 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are white (10YR 8/1) when dry and few faint discontinuous coatings of secondary carbonates and silica that are pale yellow (2.5Y 8/3) when dry on duripan surface; 3 percent basalt gravel encased within duripan; violently effervescent; clear wavy boundary.

3Bkqm2—22 to 27 inches; thin stratified layers of weakly cemented and moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; violently effervescent; abrupt wavy boundary.

4R—27 inches; basalt.

Thickness of the mollic epipedon and volcanic ash influence is 7 to 10 inches. Depth to the duripan is 10 to 20 inches. Depth to bedrock is 20 to 40 inches.

The Ap horizon has chroma of 2 or 3 dry.

The 2Bt1 horizon has value of 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam or loam. It is neutral or slightly alkaline.

The 2Bt2 horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam or loam. It is neutral or slightly alkaline.

The 3Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Willis Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over a duripan over basalt
Slope range: 0 to 45 percent
Elevation: 1,300 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Haploduridic Durixerolls

Typical pedon of Willis silt loam, 3 to 8 percent slopes, about 9 miles northeast of Palisades; about 1,600 feet west and 500 feet south of the northeast corner of sec. 23, T. 23 N., R. 25 E. (lat. 47°28’59” N., long. 119°38’44” W.)

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine interstitial pores; neutral; clear wavy boundary.

Bw—9 to 17 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common fine and medium interstitial pores; slightly alkaline; clear wavy boundary.

Bk—17 to 30 inches; light yellowish brown (10YR 6/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine roots; few medium interstitial

and tubular pores; few fine filaments of secondary carbonates in pores; slightly effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm1—30 to 34 inches; indurated duripan cemented with secondary carbonates and silica; many distinct continuous coatings of secondary carbonates and silica that are light gray (10YR 7/1) when dry on duripan surface; violently effervescent; clear wavy boundary.

2Bkqm2—34 to 39 inches; thin stratified layers of weakly cemented or moderately cemented duripan interspersed with thin layers of silt loam and gravelly silt loam; abrupt wavy boundary.

3R—39 inches; basalt.

The mollic epipedon is 9 to 12 inches thick. Depth to secondary carbonates is 15 to 27 inches. Depth to duripan is 20 to 40 inches. Depth to bedrock is 30 to 60 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist.

The Bk horizon has value of 5 to 7 dry and 4 to 8 moist and chroma of 1 to 4 dry or moist. It has 1 to 10 percent calcium carbonate equivalent.

The 2Bkqm horizon is indurated in the upper part and weakly cemented or moderately cemented with carbonates and silica in the lower part. It is 4 to 24 inches thick.

Willock Series

Soil depth: Deep
Drainage class: Well drained
Landform: Glaciated plateaus
Parent material: Loess and volcanic ash over glacial till over dense glacial till or granite
Slope range: 0 to 60 percent
Elevation: 1,800 to 2,900 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 110 to 165 days

Taxonomic classification: Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Haploxerolls

Typical pedon of Willock ashy fine sandy loam, 8 to 15 percent slopes, about 6 miles north and 4 miles west of Electric City; about 1,500 feet north and 200 feet west of the southeast corner of sec. 25, T. 30 N., R. 29 E. (lat. 48°04’04” N., long. 119°06’16" W.)

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) ashy fine sandy loam, very dark brown (10YR 2/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and slightly plastic; many very fine roots; few very fine interstitial and tubular pores; 2 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; abrupt smooth boundary.

A—8 to 23 inches; brown (10YR 4/3) ashy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial and tubular pores; 3 percent coarse and very coarse sand-sized volcanic ash; 5 percent gravel; neutral; clear wavy boundary.

2Bw1—23 to 34 inches; yellowish brown (10YR 5/4) cobbly loam, dark yellowish brown (10YR 3/4) moist; weak fine and medium subangular blocky structure; soft,

very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial pores; 10 percent gravel and 10 percent cobbles; neutral; clear wavy boundary.

2Bw2—34 to 43 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine roots; common very fine interstitial and tubular pores; 5 percent gravel and 5 percent cobbles; neutral; abrupt wavy boundary.

2Cd1—43 to 53 inches; light gray (10YR 7/2) dense till that crushes to sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; common very fine interstitial and tubular pores; 10 percent gravel; neutral; abrupt wavy boundary.

2Cd2—53 to 60 inches; light gray (10YR 7/1) dense till that crushes to loamy sand, olive brown (2.5Y 4/4) moist; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 5 percent gravel and 5 percent cobbles; neutral.

The mollic epipedon is 20 to 30 inches thick. The volcanic ash influence is 20 to 30 inches thick. The lower part of the particle-size control section has 5 to 30 percent rock fragments. Depth to dense till, bedrock, or a duripan is 40 to 60 inches.

The Ap and A horizons have value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist. They have 5 to 15 percent rock fragments.

The 2Bw1 horizon has chroma of 2, 3, or 4 dry and 3 or 4 moist. It is cobbly loam or gravelly loam. It has 15 to 30 percent rock fragments.

The 2Bw2 horizon has value of 5, 6, or 7 dry and 3, 4, or 5 moist and chroma of 2, 3, or 4 dry and 3 or 4 moist. The fine-earth fraction is sandy loam or fine sandy loam. The horizon has 5 to 25 percent rock fragments.

Where present, the 2Cd horizon has hue of 10YR or 2.5Y, value of 6, 7, or 8 dry and 4, 5, or 6 moist, and chroma of 1 or 2 dry and 2 to 4 moist. The fine-earth fraction is sandy loam, loamy sand, or loam. The horizon has 5 to 40 percent rock fragments.

Where present, the duripan is weakly cemented or moderately cemented with carbonates and silica.

Where present, the bedrock has a paralithic layer above a lithic layer.

Winblow Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Mounds and depressions of nonglaciated plateaus
Parent material: Loess and volcanic ash over basalt
Slope range: 0 to 20 percent
Elevation: 1,500 to 2,800 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic Vitritorrandic Haploxerolls

Typical pedon of Winblow ashy fine sandy loam, 0 to 8 percent slopes, about 3.5 miles southwest of Withrow; about 1,100 feet north and 900 feet east of the southwest corner of sec. 7, T. 25 N., R. 24 E. (lat. 47°40’26” N., long. 119°52’17” W.)

Ap1—0 to 4 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate coarse granular; soft, very friable, nonsticky and nonplastic; many very

fine and few fine roots; common very fine tubular and interstitial pores; 10 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt wavy boundary.

Ap2—4 to 7 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; soft, very friable, nonsticky and slightly plastic; many very fine roots; common very fine tubular and interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

A—7 to 16 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular and interstitial pores; 15 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Bw1—16 to 22 inches; brown (10YR 5/3) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular and interstitial pores; 20 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

Bw2—22 to 28 inches; brown (10YR 5/3) ashy fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular and interstitial pores; 25 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt smooth boundary.

Bw3—28 to 30 inches; brown (10YR 5/3) ashy silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores and common very fine and fine interstitial pores; 5 percent coarse and very coarse sand-sized volcanic ash; neutral; abrupt wavy boundary.

2R—30 inches; basalt.

The mollic epipedon is 10 to 19 inches thick. Thickness of the volcanic ash influence and depth to bedrock are 20 to 40 inches.

The Ap1 horizon has chroma of 2 or 3 dry or moist.

The Ap2 and A horizons have chroma of 2 or 3 dry or moist. They are neutral to moderately alkaline.

The Bw1 horizon has value of 3 or 4 moist and chroma of 3 or 4 dry and 2 or 3 moist. It is ashy fine sandy loam, ashy silt loam, or ashy loam. It is neutral to moderately alkaline.

The Bw2 horizon has value of 3 or 4 moist and chroma of 3 or 4 dry. It is ashy fine sandy loam or ashy sandy loam. It is neutral to moderately alkaline.

The Bw3 horizon has value of 3 or 4 moist and chroma of 3 or 4 dry. It is ashy silt loam, ashy loam, ashy fine sandy loam, or ashy sandy loam. It is neutral to moderately alkaline.

Xerofluvents

Soil depth: Very deep
Drainage class: Excessively drained
Landform: Terraces
Parent material: Alluvium
Slope range: 0 to 5 percent

Elevation: 600 to 2,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 110 to 190 days

Taxonomic classification: Xerofluvents

Representative pedon of Xerofluvents extremely cobbly loamy sand in an area of Xerofluvents-Beverly association, 0 to 15 percent slopes, about 7 miles southwest of McNeil Canyon; about 2,400 feet west and 500 feet south of the northeast corner of sec. 11, T. 26 N., R. 22 E. (lat. 47°46'20" N., long. 120°02'26" W.)

A—0 to 6 inches; light brownish gray (10YR 6/2) extremely cobbly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 35 percent gravel, 35 percent cobbles, 4 percent stones, and 1 percent boulders; neutral; gradual wavy boundary.
C—6 to 60 inches; multicolored extremely cobbly sand; single grain; loose, nonsticky and nonplastic; 35 percent gravel, 35 percent cobbles, 4 percent stones, and 1 percent boulders; neutral.

Frequent periods of flooding occur in January through July.

The A horizon has value of 5 or 6 dry and 3 or 4 moist and chroma of 2, 3, or 4 dry or moist. It has 35 to 70 percent rock fragments.

The fine-earth fraction of the C horizon is sand or coarse sand. The horizon is 45 to 85 percent rock fragments. In some pedons, it is stratified with thin layers of loamy sand or sandy loam.

Zeemal Series

Soil depth: Shallow
Drainage class: Moderately well drained
Landform: Glaciated plateaus
Parent material: Loess and volcanic ash over a duripan over glaciolacustrine deposits
Slope range: 0 to 30 percent
Elevation: 1,600 to 2,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Ashy, glassy, mesic, shallow Xerochreptic Haplodurids

Typical pedon of Zeemal ashy fine sandy loam, 3 to 8 percent slopes, about 7 miles southeast of Mansfield; about 1,100 feet south and 1,400 feet east of the northwest corner of sec. 7, T. 26 N., R. 27 E. (lat. 47°46'33" N., long. 119°29'27" W.)

Ap—0 to 8 inches; grayish brown (10YR 5/2) ashy fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, loose, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; disseminated carbonates; 20 percent coarse and very coarse sand-sized volcanic ash; strongly effervescent; moderately alkaline; clear wavy boundary.
2AB—8 to 12 inches; gray (5Y 5/1) ashy silt loam, dark olive gray (5Y 3/2) moist; moderate thick platy structure; hard, firm, nonsticky and nonplastic; few very fine roots; common fine filaments of secondary carbonates in pores; violently effervescent; moderately alkaline; abrupt smooth boundary.
2Bkqm—12 to 17 inches; gray (2.5Y 6/1) weakly cemented duripan that crushes to sandy loam, dark olive gray (5Y 3/2) moist; laminar cap less than 1 millimeter thick; massive; very hard, very firm, nonsticky and nonplastic; few very fine roots

on top of horizon; common distinct coatings of secondary carbonates and silica that are white (7.5YR 8/1) when dry on laminar cap; few fine filaments of secondary carbonates in pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

2Bk—17 to 31 inches; gray (5Y 5/1) silt loam, dark olive gray (5Y 3/2) moist; moderate thin and medium platy structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine tubular pores; common fine filaments of secondary carbonates in pores and common distinct coatings of secondary carbonates on vertical and horizontal fracture faces; few fine distinct redoximorphic concentrations that are olive yellow (2.5Y 6/6) and light olive brown (2.5Y 5/6) when dry lining pores and on vertical fracture faces; violently effervescent; moderately alkaline; abrupt smooth boundary.

2C1—31 to 33 inches; olive gray (5Y 4/2) loamy fine sand, very dark brown (10YR 2/2) moist; weak very thin platy structure; soft, loose, nonsticky and nonplastic; many very fine interstitial pores; disseminated carbonates; slightly effervescent; moderately alkaline; abrupt smooth boundary.

2C2—33 to 44 inches; light gray (5Y 7/1) silty clay loam, olive gray (5Y 5/2) moist; massive, varved glaciolacustrine sediment; slightly hard, firm, moderately sticky and moderately plastic; few very fine interstitial pores; disseminated carbonates; slightly effervescent; slightly alkaline; gradual irregular boundary.

2C3—44 to 60 inches; gray (5Y 5/1) silt loam, very dark gray (5Y 3/2) moist; massive, laminated glaciolacustrine sediment; slightly hard, friable, nonsticky and nonplastic; few fine to very coarse prominent redoximorphic concentrations that are brown (7.5YR 5/6) when moist in horizontal laminations and on vertical fracture faces; slightly alkaline.

Thickness of the volcanic ash influence is 10 to 20 inches. Depth to the duripan is 10 to 20 inches.

The Ap horizon has value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 dry or moist.

The 2AB horizon has hue of 5Y to 10YR dry or moist, value of 4 or 5 dry and 2 or 3 moist, and chroma of 1 to 3 dry and 2 or 3 moist. It is ashy silt loam, ashy loam, or ashy fine sandy loam. It is moderately alkaline or strongly alkaline.

The 2Bkqm horizon has hue of 2.5Y, 5Y, or 10YR dry or moist, value of 6 or 7 dry and 3 or 4 moist, and chroma of 1 to 3 dry and 2 to 4 moist. It is weakly cemented or moderately cemented with carbonates and silica. It is moderately alkaline or strongly alkaline.

The 2Bk and 2C1 horizons have hue of 5Y or 10YR, value of 6 or 7 dry and 3 or 4 moist, and chroma of 1 to 3 dry and 2 or 3 moist. They are silt loam or loamy fine sand. They are moderately alkaline or strongly alkaline.

The 2C2 and 2C3 horizons have hue of 2.5Y, 5Y, or 10YR, value of 4 to 8 dry and 2 to 5 moist, and chroma of 1 to 3 dry or moist. They are silt loam or silty clay loam with occasional thin layers of loamy fine sand. They are slightly alkaline to strongly alkaline.

Zen Series

Soil depth: Moderately deep
Drainage class: Well drained
Landform: Nonglaciated plateaus
Parent material: Loess over older loess over basalt
Slope range: 0 to 45 percent
Elevation: 1,400 to 3,300 feet
Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 130 to 180 days

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Calciargidic Argixerolls

Typical pedon of Zen silt loam, 3 to 8 percent slopes, about 12 miles south of Waterville; about 1,300 feet north and 500 feet east of the southwest corner of sec. 33, T. 23 N., R. 22 E. (lat. 47°28'10" N., long. 120°02'25" W.)

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, very dark brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular and vesicular pores; 2 percent pumice 0.5 to 2.0 millimeters in size; slightly acid; gradual smooth boundary.

A—9 to 15 inches; yellowish brown (10YR 5/4) silt loam, very dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine and fine roots; common fine tubular and vesicular pores; 3 percent coarse and very coarse sand-sized volcanic ash; neutral; clear smooth boundary.

Btq—15 to 27 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few fine and very fine vesicular pores; common faint clay films on faces of peds and few faint clay films on rock fragments; 2 percent coarse very hard durinodes; trace of coarse and very coarse sand-sized volcanic ash; 5 percent gravel; slightly alkaline; clear smooth boundary.

Btk—27 to 36 inches; yellowish brown (10YR 5/4) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; very hard, firm, slightly sticky and slightly plastic; few very fine roots; common fine and medium vesicular pores; few faint clay films on faces of peds and lining pores and few distinct clay films that are brown (10YR 5/3) when dry on rock fragments; 2 percent coarse very hard durinodes; common fine filaments of secondary carbonates in pores and few distinct coatings of secondary carbonates on faces of peds and rock fragments; 5 percent gravel; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2R—36 inches; basalt.

The mollic epipedon is 10 to 20 inches thick. The particle-size control section averages 22 to 28 percent clay, more than 15 percent fine sand or coarser, and 5 to 15 percent rock fragments. Depth to secondary carbonates is 14 to 30 inches. Depth to basalt is 20 to 40 inches.

The Ap and A horizons have value of 4 or 5 dry and 2 or 3 moist and chroma of 2 or 3 moist and 3 or 4 dry.

The Btq horizon has value of 4 to 6 dry and 3 or 4 moist and chroma of 3 or 4 dry or moist. It is silt loam, silty clay loam, or clay loam. It is slightly alkaline or moderately alkaline.

The Btk horizon has value of 4 to 6 dry and 3 to 5 moist and chroma of 3 or 4 dry or moist. It is loam, clay loam, silty clay loam, silt loam, or gravelly loam. The horizon is 5 to 20 percent rock fragments. It is moderately alkaline or strongly alkaline. It has 2 to 10 percent calcium carbonate equivalent.

Formation of the Soils

Soils are a collection of three-dimensional natural bodies on the landscape that contain living matter and support or are capable of supporting plants. The characteristics and properties of soils are determined by the physical and chemical processes resulting from the interaction of five soil-forming factors—parent material, climate, living organisms, topography, and time. While the influence of each factor varies from place to place, the interaction of all of the factors results in the development of unique soils. In this section, the five soil-forming factors and their influence on soil development are discussed separately.

Parent Material

Parent material is the unconsolidated mineral or organic matter from which soils develop. The soils in Douglas County formed in a wide variety of parent material, including residuum and colluvium derived from igneous, metamorphic, and sedimentary rock; glacial deposits of till, outwash, and glaciolacustrine sediment; loess and eolian sand; volcanic ash; and alluvium. Many of the soils in the county formed in more than one kind of parent material. For example, the soils in the Touhey series formed in loess and volcanic ash over glacial till.

Residuum and colluvium derived from bedrock.—Five main types of bedrock are in the county, including gneiss, granite, migmatite, siltstone, and basalt. Soils that formed in bedrock that weathered in place or moved downslope are highly influenced by the characteristics of the bedrock. The type and hardness of the bedrock influence the characteristics and properties of the soils, such as the content of gravel, the presence of a lithic or paralithic contact, reaction, and the content of clay. The softer bedrock weathers more easily, typically resulting in a higher content of clay.

Gneiss is massive and relatively resistant to weathering. It extends from East Wenatchee north along the Columbia River Valley to about the town of Orondo. Migmatite and gneiss extend from north of Orondo along the Columbia River to the Alameda Flats area, northwest of Grand Coulee Dam. Soils that developed this parent material have a high percentage of angular rock fragments and a lithic contact. Soils of the Swakane series are an example. These soils are loamy-skeletal (have more than 35 percent gravel-sized fragments in the profile) and are 10 to 20 inches deep to a lithic contact. Torriorthents in these areas are very deep, loose, gravelly soils that formed in colluvial material on side slopes of plateaus.

Granitic rock, including granite, granodiorite, and tonalite, extends from about Orondo north and east along the edge of the Columbia River Valley to Grand Coulee Dam. Soils that formed in granitic rock generally have less than 35 percent gravel-sized fragments and have a paralithic contact because the bedrock weathers more easily. Soils of the Ginnis series are an example.

Siltstone is along Blue Grade Road in East Wenatchee. It is part of the Wenatchee Formation, which extends into Chelan County. Siltstone weathers quite rapidly, and the soils that formed in this material have few rock fragments, a higher content of clay, and a paralithic contact. Because the extent of this siltstone is limited in the county, the soils that formed in this material were mapped as inclusions with the Entiat soils.

Basalt underlies nearly all of the upland plateau in the county. The upper basalt flows typically are part of the younger Wanapum Basalt subgroup, and the lower basalt flows are part of the older Grande Ronde Basalt subgroup (Tabor, 1982 and 1987). The bedrock of the upland plateau typically consists of a series of basalt flows 30 to 50 feet thick. During the intervals between the later basalt flows, alluvial sediment many feet thick in some areas was deposited between the basalt flows. These interbeds are known as the Ellensburg Formation. The soils generally have a high content of clay in many of the layers, but they also can have layers of sandy loam. In a few areas in the northwestern part of the county, the upper layers of basalt have been eroded away, exposing this formation. Soils of the Argabak, Shinn, and Lickskillet series are examples of those that formed in areas where basalt is at a very shallow depth.

Some weathering of these soils has occurred, resulting in a clay loam subsoil. In some areas clay is in the fractures in the upper part of the bedrock. Soils that formed in these areas, such as those of the Aarup and Sprauer series, have a duripan 3 inches to many feet thick that overlies the bedrock.

Glacial deposits.—During the Pleistocene, about 2 million to 12,000 years ago, glaciers occupied the northern part of the county at times. The most recent ice advance was the Wisconsin glaciation. The Okanogan lobe of the Cordilleran ice sheet extended the farthest south, into north-central Washington, depositing glacial till in most glaciated areas. Glacial till is unsorted, nonstratified material that has a definite grayish color. It consists of a heterogeneous mixture of sand, silt, clay, and rock fragments.

A few very large boulders, or “haystack rocks,” are on the surface in some areas. Drumlins, kames, kettles, and eskers also are in the glaciated part of the county. The landforms have been preserved remarkably well because of the semiarid climate. Mineralogy of the till generally is similar to that of the local underlying bedrock, but in some areas along the Columbia River Valley there are basalt-dominated till soils that are underlain by granitic or igneous-metamorphic rock at a depth of 60 inches or more. Most of the soils in the county that formed in glacial till have a mantle of loess and volcanic ash that was deposited after the glaciers melted (Beget, 1984). Soils of the Tagear and Touhey series are examples. The Tagear soils have a mantle of loess and volcanic ash 24 to 37 inches thick over glacial till. The Touhey soils have a mantle of loess and volcanic ash 15 to 24 inches thick over glacial till. These soils formed in glacial till deposited as ground moraines. Soils of the Heytou series are on the steeper sloping, stony drumlins and on terminal and recessional moraines (fig. 27).

Glacial outwash from melting glaciers and catastrophic floods of glacial meltwater from Glacial Lake Missoula 13,000 to 20,000 years ago filled the channels and bottoms of the upland plateau and formed terraces along the Columbia River (Hanson, 1970). Glacial outwash consists mainly of sorted and stratified sand, gravel, and cobbles. Most of the soils that formed in glacial outwash on the upland plateau have a mantle of loess and volcanic ash ranging in thickness from a few inches to more than 40 inches. Some of these soils along the Columbia River have a mantle of alluvium and may be cobbly or stony. The soils that formed in glacial outwash generally have a fine sandy loam or ashy very fine sandy loam surface layer underlain by extremely gravelly coarse sand or extremely cobbly sand. Soils of the Supplee and Tubspring series are examples. These soils have a mantle of loess and volcanic ash 14 to 40 inches thick over glacial outwash.

The amount of glaciolacustrine sediment in the county is limited. Small glacial lakes formed as glaciers damned small side drainageways and low-lying areas. Glaciolacustrine sediment consists of stratified silt, clay, and sand, generally does not contain gravel or cobbles, and commonly is in lower lying positions than glacial till. It is also in small areas on river terraces. Soils that formed in this sediment generally have a mantle of ash and loess that is fine sandy loam underlain by layers of silt loam



Figure 27.—Terminal moraine on the southern extent of the Wisconsin glaciation. Siweeka-Brazlan-Brazlan, extremely bouldery complex, 3 to 15 percent slopes, in background. Nemire ashy fine sandy loam, 0 to 3 percent slopes, in foreground.

and very fine sandy loam lacustrine sediment at a depth of 20 to 40 inches. Simsfield soils have a mantle of loess and ash 14 to 20 inches thick over lacustrine sediment. Zeemal soils have a mantle of loess and ash 10 to 20 inches thick over lacustrine sediment.

Loess and eolian sand.—Wind-deposited, silt-sized particles known as loess make up the majority of the silt material in the upper part of most soils in the county (figs. 28 and 29). This material was transported by southwesterly winds from glacial outwash and glaciolacustrine deposits in the southern part of Washington. It is part of a larger deposit of loess called the Palouse Formation. The loess was deposited over the period from more than 50,000 years ago to the present. In the southern part of the county that was not impacted by glaciation, the thickness of the loess is as much as 20 feet or more, but it averages 4 to 5 feet. The soils that have the highest content of loess are in the southwestern part of the county. The Renslow soils formed in loess over older loess. Wind-deposited eolian sand is the parent material of the Quincy and Ewall soils. These soils are on river terraces and nearby upland slopes. Large areas of Quincy soils are in the East Wenatchee area.

Volcanic ash.—The majority of the volcanic ash in the county originated from Glacier Peak in the Cascade Mountains. Volcanic ash from Mount Mazama and Mount St. Helens are also present in minor amounts. The upper part of most soils in the county is about 15 to 55 percent volcanic ash, except those in the southwestern corner. The soils on river terraces generally have less volcanic ash. One of the oldest volcanic deposits in the county is Glacier Peak tephra layer G, which was deposited about 11,670 years ago. The eruption of Glacier Peak produced a plume of volcanic ash that covered the northern half of the county. The deposition of tephra layer B about 11,250 years ago produced a plume of volcanic ash that covered generally the same area but on a slightly more southeasterly axis. Above tephra layer B is a mantle of volcanic ash, which includes minor to moderate amounts of some or all of the

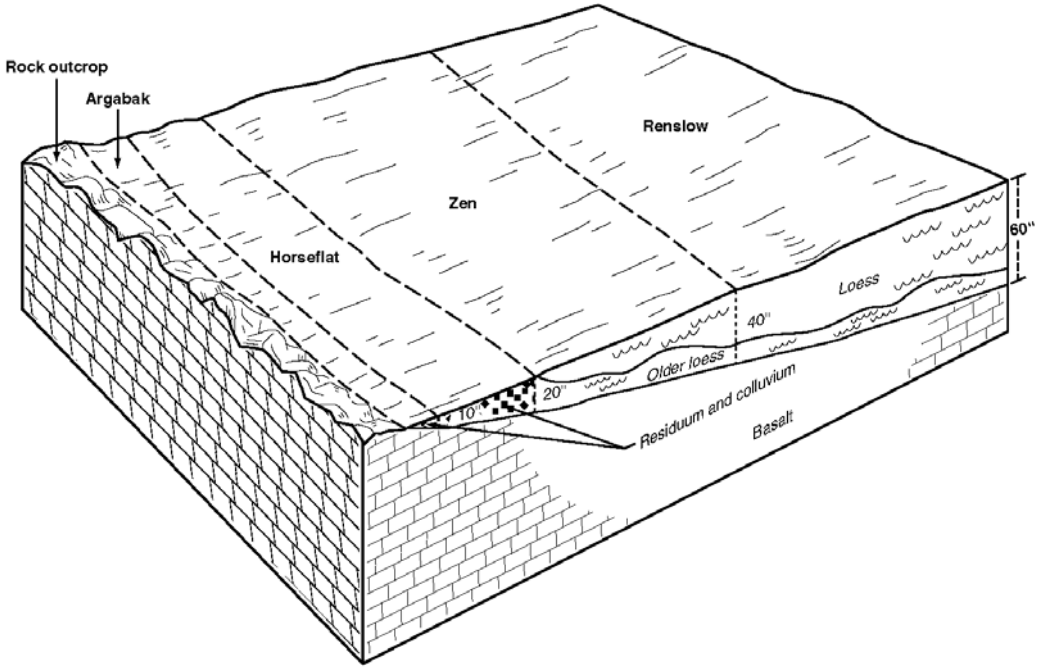


Figure 28.—Cross-section of soils that formed in residuum and colluvium or loess over older loess over basalt and receive 9 to 12 inches of precipitation.

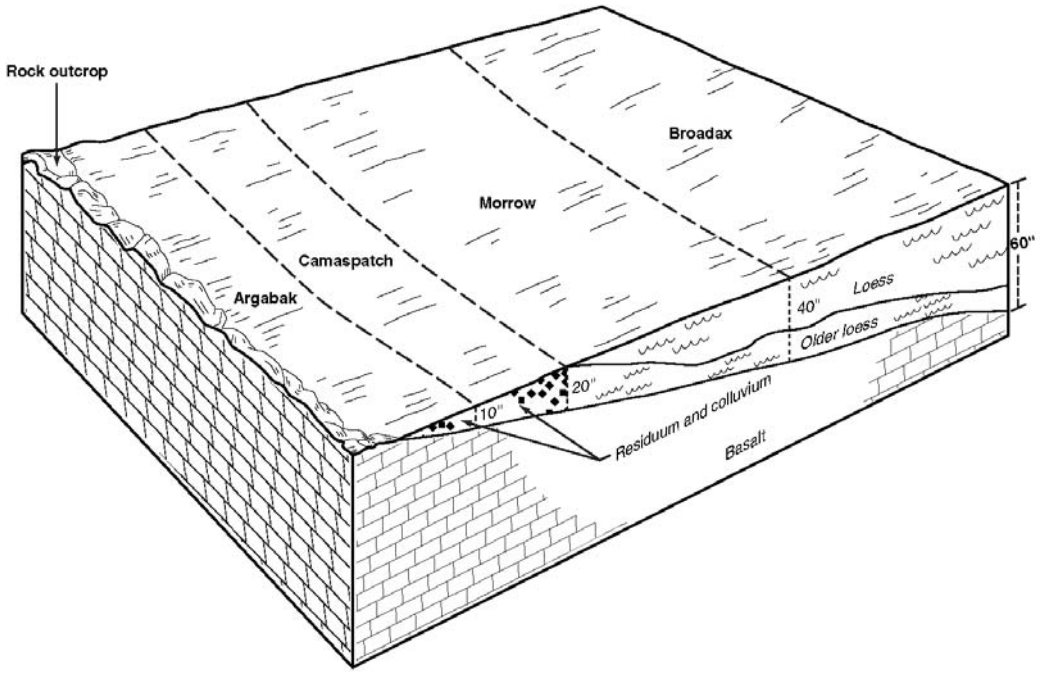


Figure 28.—Cross-section of soils that formed in residuum and colluvium or loess over older loess over basalt and receive 12 to 15 inches of precipitation.

following volcanic ash deposits—Mount St. Helens set J deposited about 10,000 years ago; Mount Mazama tephra layer O deposited about 6,900 years ago, Glacier Peak tephra set D deposited about 5,500 years ago, and Mount St. Helens tephra layer set Yn deposited about 3,400 years ago (Porter, 1978). The upper mantle of volcanic ash commonly is fine sandy loam. Soils of the Dougville and Nemire series are examples of those that formed in deep deposits of volcanic ash and loess. Dougville soils have a mantle of loess and volcanic ash 20 to 39 inches thick over older soil material (fig. 30). Nemire soils have more than 40 inches of loess and volcanic ash over other soil material.

Alluvium.—The major streams and many of the secondary streams in the county are on flood plains and stream terraces that consist of recent alluvium. The characteristics of the alluvium are dependent on the velocity and volume of floodwater and the soils and geology of adjacent upland areas. The profile of soils that formed in alluvium generally is stratified sandy loam, loamy sand, and sand because of the variations in the velocity of the floodwater during deposition. Soils of the Beverly and Esquatzel series are examples of those that formed in alluvium. Beverly soils formed in alluvium deposited by fast-moving water and typically have a cobbly fine sandy loam surface layer over gravelly fine sandy loam, very gravelly sandy loam, and extremely gravelly loamy coarse sand. Esquatzel soils formed in alluvium deposited by slow-moving water and typically are silt loam throughout. Alluvial fans are common in areas where drainageways on relatively steep side slopes emerge onto a gently sloping valley bottom or terrace.

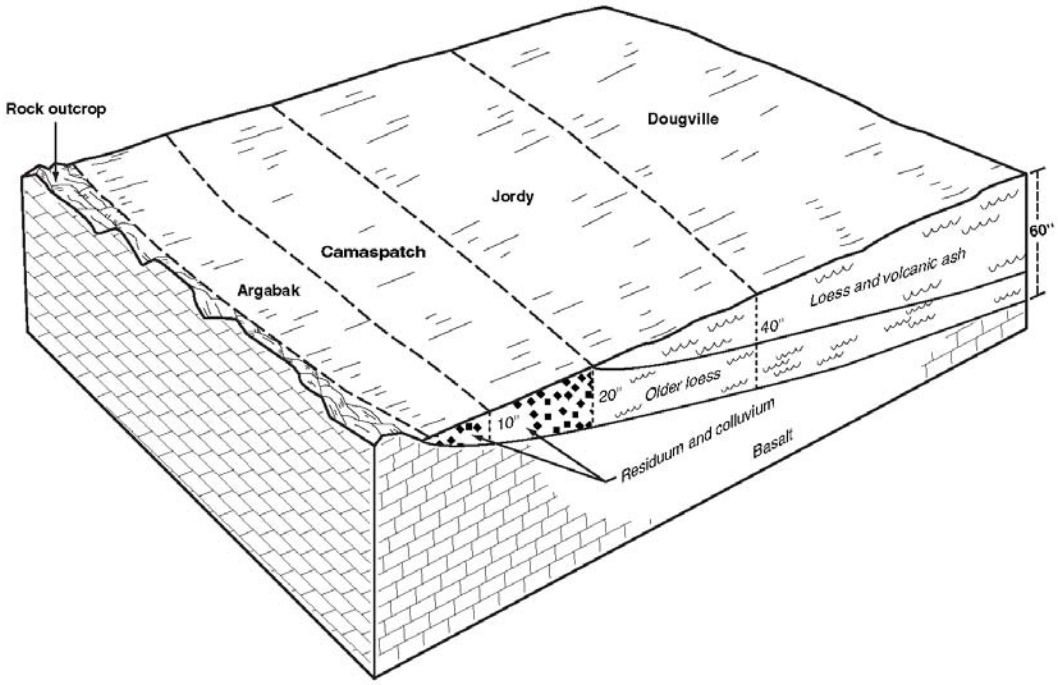


Figure 30.—Cross-section of soils that formed in residuum and colluvium or loess and volcanic ash over older loess over basalt and receive 12 to 15 inches of precipitation.

Climate

Climate is an important part of the soil-forming process. Precipitation and temperature are the primary climatic factors affecting soil development. Precipitation, or the amount of moisture entering the soil, influences the physical, chemical, and biological processes of soil formation. These include weathering of minerals, production and decomposition of organic matter, movement of minerals and nutrients, and rate of soil erosion. The rate of these processes is influenced by soil temperature. It is an important factor for the weathering of minerals and the production and decomposition of organic matter.

The county can be grouped into five broad climatic zones. These zones are defined in terms of the soil moisture and temperature regimes and the ecological sites and associated vegetation.

The lowest, driest, and warmest zone borders the Columbia River. It includes the area of irrigated orchards and extends to Moses Coulee and about Palisades. The soils have an aridic moisture regime and a mesic temperature regime. Elevation is about 600 to 2,000 feet. The mean annual precipitation is 7 to 11 inches, and the mean annual air temperature is 48 to 51 degrees F. The frost-free season is 140 to 200 days. The native vegetation is mostly grasses and shrubs. The soils in this zone have sufficient accumulation of organic matter to form a thin mollic epipedon. Carbonates generally have been leached to a depth of more than 40 inches, but some soils, such as those of the Finley series, have carbonates at a depth of 22 inches. The subsoil generally has also been weathered and altered to form a cambic horizon. Soils of the Burch and Cashmere series are examples of those in this zone.

The next climatic zone is on the Waterville Plateau at an elevation of about 1,600 to 2,800 feet. The soils have an aridic moisture regime and a mesic temperature regime. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 48 to 50 degrees F. The frost-free season is 130 to 180 days. The native vegetation is mostly grass, shrubs, and brush. This climatic zone includes the slopes leading to the upland plateau and the drier areas of the plateau. The soils have a slightly thicker and darker colored surface layer than do the soils in the driest zone, and they have a cambic horizon. Soils of the Touhey, Tagear, Benwy, and Renslow series are examples of those in this zone.

The next climatic zone is also on the Waterville Plateau at an elevation of about 1,600 to 2,800 feet. The soils in this zone have a xeric moisture regime and a mesic temperature regime. The mean annual precipitation is 11 to 13 inches, and the mean annual air temperature is 48 to 50 degrees F. The frost-free season is 120 to 170 days. The native vegetation is mostly grass, shrubs, and brush. Soils of the Siweeka and Timentwa series are examples of those in this zone.

The next climatic zone is on the Waterville Plateau and on Badger Mountain at an elevation of about 2,400 to 4,000 feet. The soils have a xeric moisture regime and a mesic temperature regime. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 47 to 49 degrees F. The frost-free season is 110 to 165 days. The native vegetation is mostly grass, forbs, shrubs, and brush. These soils have a darker colored and thicker surface layer, and most have sufficient clay in the subsoil to meet the criteria for an argillic horizon. The soils in this zone receive sufficient moisture to leach carbonates out of the profile and cations out of the upper part of the soil, resulting in lower base saturation. Soils of the Lorena and Titchenal series are examples of those in this zone.

The highest, moistest, and coolest climatic zone in the county is on the north aspect of Badger Mountain. The soils in this zone have a xeric moisture regime and a frigid temperature regime. Elevation is about 2,800 to 4,200 feet. The mean annual precipitation is 18 to 24 inches, and the mean annual air temperature is 43 to 46 degrees F. The frost-free season is 75 to 120 days. The native vegetation is forbs,

brush, and trees. The soils typically have a well-developed argillic horizon and a mollic epipedon. The soils in this zone receive sufficient moisture to leach cations and carbonates out of the profile, resulting in lower base saturation. Soils of the Cordy and Stemilt series are examples of those in this zone.

In winter, the surface layer of all of the soils in the county is frozen for a period of time. The length of time varies depending on the climatic zone. If rain falls when the soil is frozen or if snow melts too rapidly in spring, the risk of erosion is severe and flooding and damage from deposition along streams can occur.

Living Organisms

Plants, micro-organisms, earthworms, man, and other forms of life are important in determining the rate of soil formation. The vegetation in the county can be divided into the five broad zones described in the previous section. The effects of vegetation on soil formation are difficult to separate from those of climate because the two factors are very interdependent.

The rangeland soils in the 7- to 12-inch precipitation zones have a thinner mollic epipedon because the plant cover is relatively sparse and thus additions of organic matter are limited. Bluebunch wheatgrass and Wyoming big sagebrush are the dominant plants. Rangeland soils in the 11- to 18-inch precipitation zones support plant communities that are more productive; thus, they have a higher content of organic matter. Bluebunch wheatgrass, Idaho fescue, Wyoming big sagebrush, and threetip sagebrush are the dominant plants.

The forested soils in this county generally have a thinner, darker colored surface layer as compared to the soils that formed under rangeland vegetation. Pinegrass, ponderosa pine, and Douglas fir are the dominant plants. Most of the organic matter in these soils is decomposed conifer needles. Conifer needles and many forestland shrubs decompose slowly, resulting in a thin A horizon. Forested soils generally have a thicker O horizon than do rangeland soils. Base saturation and reaction of the forested soils generally is also lower. Organic acids produced from the decomposition of forest litter contribute to the acidity of the soil. Some products from the decomposition of forest litter act as chelating agents of iron and aluminum compounds, increasing solubility and reducing base saturation and reaction.

Man's influence on the soils in the county has been considerable in some areas. The irrigated soils along the Columbia River have a much darker and thicker surface layer. Some water erosion has occurred on nearly all of the steeper sloping soils. During the dry years of the 1930's, much wind erosion occurred in the Farmer-Withrow area. The surface layer of most nonirrigated cultivated soils is more acid now because of the addition of ammonia-based nitrogen fertilizers, and it also has somewhat less organic matter because of oxidation of the soil as a result of cultivation and soil erosion.

Bacteria, fungi, and many other micro-organisms decompose organic matter and release nutrients to plants. They also influence the formation of soil peds. Soil properties, such as drainage, temperature, and reaction, influence the type of micro-organisms that live in the soil. Fungi generally are more active in acid soils, and bacteria are more active in neutral soils.

Earthworms, insects, and small burrowing animals mix the soil and create small channels and pores that affect the aeration and percolation of water in the soil. Earthworms incorporate crop residue and other organic matter into the soil, which improves soil tilth and structure.

In the 9- to 12-inch precipitation zone on the upland plateau, the soils that are used as cropland and rangeland formed in loess. Burrowing cicadas and the resulting cicada casts have a significant influence on soils such as those of the Alstown and Alsash series. The cicada casts typically are concentrated at a depth of 20 to 40

inches and are denser and harder than the surrounding soil matrix because the soil material is compacted by the cicadas. The cicada casts become cemented with calcium carbonate and silica over time to form small, hard cylindrical to oval masses that reduce the volume of soil available for plant roots and for storing moisture for plants.

Shallow and very shallow soils are in small areas scattered throughout the county, commonly on ridgetops and knolls. The vegetation on the very shallow soils is sparse stiff sagebrush and Sandberg bluegrass. These soils have a thin A horizon. Soils of the Argabak series are an example.

Wet, saline and sodic soils are in small basins, in potholes, and along drainageways of the glaciated plateaus. Saltgrass, greasewood, and basin wildrye are common plants. Halaquepts and Aquolls are examples.

Topography

The configuration of the land surface, or topography, affects soil formation in several ways. Aspect affects the amount of solar radiation at a given site, which influences soil temperature and the rate of evapotranspiration. Soils on north- and east-facing slopes receive less solar radiation and thus have a lower rate of evapotranspiration than do soils on west- and south-facing slopes; therefore, the soils on north- and east-facing slopes are cooler and moister. Commonly, soils on north-facing slopes have a denser plant cover than do soils on south-facing slopes. The denser plant cover produces soils that have a higher content of organic matter and provides more protection from soil erosion. Thus, these soils have a deeper profile and a thicker mantle of loess and volcanic ash. On south-facing slopes, the sparse vegetation and higher rate of soil erosion commonly result in shallow or moderately deep soils that have little, if any, volcanic ash influence.

Steepness of slope also has a strong influence on soil formation. Generally, soils on steep slopes have minimal profile development because the rate of water erosion and colluvial movement of soil material is nearly as high as the rate of soil development. Soils in gently sloping areas commonly have an argillic horizon. Soils of the Renslow series are an example. These soils are on stable landscapes and have an argillic horizon. Soils of the Cheviot series are an example of those that formed on steeper, less stable landscapes. These soils have a cambic horizon.

The position on the landscape can also affect the soil moisture regime. Most of the soils on uplands are well drained, but the soils in low-lying areas, such as flood plains and valley bottoms, commonly have a seasonal high water table and are subject to flooding. Soils of the Simsfield, Waterflat, and Zeemal series are examples of those that have a seasonal high water table. They are in low-lying areas that receive supplemental moisture from upland areas. In some soils that have a seasonal high water table and are in low-lying areas, evaporation concentrates salts and alkali at the surface. Halaquepts are an example.

The location of the soils on the upland plateau can also affect soil formation by influencing soil moisture and/or soil temperature. Soils in the east-central and northeastern parts of the county tend to receive more precipitation from summer thunderstorms while soils in the western and northwestern parts tend to have more snow on the ground for longer periods in winter.

Elevation also affects soil development. The soils at the higher elevations receive more precipitation and are cooler. The soils at an elevation of 3,000 to 4,200 feet on Badger Mountain are significantly cooler and moister because of the cooler air temperature and greater snowfall at this elevation as compared to the soils at an elevation of 650 to 1,400 feet on terraces along the Columbia River.

Time

The interaction of the other soil-forming factors over time determines the degree of soil development. Weathering of rock and minerals and development of soil horizons are partially dependent on time. The longer a soil has been exposed to the soil-forming factors, the more developed the horizons become. The oldest soils in the survey are those that have not been glaciated and do not have a thick deposit of volcanic ash or loess. These include some of the soils that formed in basalt, granite, siltstone, gneiss, and schist. These soils may be more than 20,000 years old, but in all likelihood the soil-forming factors have not been constant during that time. Changes in climate and vegetation result in variations in the rate of soil development. Soils of the Argabak series are an example of those that formed in material derived from basalt. These soils have an argillic horizon.

The glaciers retreated 12,000 to 14,000 years ago. Soils of the Pogue and Malaga series formed in glacial outwash near the Columbia River. The outwash is 10,000 to 12,000 years old and was deposited as the glaciers melted. Some of the oldest volcanic layers originated from Glacier Peak and were deposited on the landscape about 11,670 years ago. The most recent volcanic layers were deposited by Mount St. Helens in 1980. The soils that formed in loess and volcanic ash and receive more than 9 inches of precipitation have been in place long enough to develop a cambic horizon. The surface layer of these soils has andic or vitrandic properties. Soils of the Touhey and Siweeka series are examples.

The youngest soils in the county formed in recent alluvium. These soils have not been in place long enough to develop genetic horizons. During each flood episode, a fresh layer of alluvium is deposited on the soil surface and the soil-forming processes must begin anew. Soils of the Beverly and Esquatzel series are examples.

The application of irrigation water over the past 60 to 70 years has accelerated the development of soils along the Columbia River. These soils have a darker colored, thicker surface layer.

References

American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th edition, 2 volumes.

American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487-00.

Beget, J.E. 1984. Tephrachronology of Late Wisconsin deglaciation and Holocene glacier fluctuations near Glacier Peak, North Cascade Range, Washington. Quaternary Research, Volume 21, pages 304-316.

Hanson, Larry Gene. 1970. The origin and development of Moses Coulee and other scabland features on the Waterville Plateau, Washington. PhD dissertation, University of Washington.

Porter, S.C. 1978. Glacier Peak tephra in the North Cascade Range, Washington: Stratigraphy, distribution, and relationship to late-glacial events. Quaternary Research, Volume 10, pages 30-41.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1996. Keys to soil taxonomy. 7th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Tabor, R.W., R.B. Waitt, Jr., V.A. Frizzell, Jr., D.A. Swanson, G.R. Byerly, and R.D. Bentley. 1982. Geology map of the Wenatchee 1:100,000 quadrangle, Central Washington. U.S. Geological Survey Miscellaneous Investigations Series.

Tabor, R.W., V.A. Frizzell, Jr., J.T. Whetten, D.A. Swanson, G.R. Byerly, D.B. Booth, M.J. Hetherington, R.B. Waitt, Jr., and R.E. Zartman. 1987. Geologic map of the Chelan 30-minute by 60-minute quadrangle, Washington. U.S. Geological Survey.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/technical/nfmanual/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/technical/publications/nrph.html

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

United States Department of Agriculture, Soil Conservation Service. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Department of Agriculture Handbook 436.

United States Department of Agriculture, Soil Conservation Service. 1981. Land resource regions and major land resource areas of the United States. U.S. Department of Agriculture Handbook 296.

United States Department of Agriculture, Soil Conservation Service. 1981. Soil survey of Douglas County, Washington.

Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Andic soil properties. A collection of physical and chemical properties given in "Keys to Soil Taxonomy" that is the taxonomic criteria for the Andisol order.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Ash (volcanic). Unconsolidated, pyroclastic material that is less than 2 millimeters in all dimensions.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon

dioxide (CO_2) is measured, and the amount of carbonate is then calculated as calcium carbonate ($CaCO_3$).

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them

separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Coulee. A dry or intermittent stream valley, specifically a steep-walled gorge representing a channeled scabland overflow channel that carried meltwater from the Glacial Lake Missoula floods. Moses Coulee and Grand Coulee are two of the largest coulees in the county.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the

stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Durinodes. Nodules that are weakly cemented to indurated with silica oxide (SiO2) and are 1 centimeter in diameter or more.

Duripan. A subsurface horizon that is cemented with silica to the extent that fragments do not slake upon prolonged soaking in water or hydrochloric acid (HCL).

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Granitic. A broad term generally applied to granite or granitelike rock. In this county, typically refers to granite, granodiorite, and tonalite along the Columbia River Valley.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above

surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cd horizon.—Consolidated material that is noncemented. Typically referred to as dense glacial till.

Cr horizon.—Consolidated bedrock beneath the soil. It is moderately cemented to extremely weakly cemented.

R layer.—Consolidated bedrock beneath the soil. It is indurated to strongly cemented.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Kettle. A steep-sided, generally basin- or bowl-shaped hole or depression, in glacial drift deposits. Commonly they have no surface drainage and contain water.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Krotovinas. Irregular, tubular streaks within one layer of soil material that have been transported from another layer. They are a result of the filling of tunnels made by burrowing animals.

Ksat. See Saturated hydraulic conductivity and Permeability.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

North aspects. All compass directions that range from about 290 to 65 degrees, including northwest, north, and northeast aspects.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Old alluvium. Alluvium that was deposited many thousands to millions of years before the last period of glaciation ended, which was about 13,000 years ago. Includes the very cobbly or very gravelly alluvium between a duripan and bedrock.

Older loess. Loess that was deposited before the last period of glaciation ended, which was about 13,000 years ago. It typically is in the lower part of loess soils and commonly is overlain by more recent loess mixed with higher amounts of volcanic ash.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the

growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Planned grazing system. System for managing rangeland in which three or more fields are alternately grazed and then rested in a planned sequence for a period of years.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Pumice. A light-colored, vesicular, glassy pararock commonly having the composition of rhyolite (high content of silica). It is 2 millimeters or larger in diameter and has a specific gravity of less than 1 gram per cubic centimeter.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturated hydraulic conductivity (Ksat). The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are *very high*, 100 or more micrometers per second (14.17 or more inches per hour); *high*, 10 to 100 micrometers per second (1.417 to 14.17 inches per hour); *moderately high*, 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour); *moderately low*, 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour); *low*, 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour); and *very low*, less than 0.01 micrometer per second (less than 0.001417 inch per hour). To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Secondary carbonates and silica. Calcium carbonate and silica weathered from the soil matrix in the upper part of the soil and then transported and deposited in the lower part of the soil by water moving through the soil profile.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 60 percent
Very steep	60 percent and higher

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

South aspects. All compass directions that range from about 65 to 290 degrees, including east, southeast, south, southwest, and west aspects.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Chief Joseph Dam, WA, 1400; Waterville, WA, 9012; and Wenatchee FAA AP, WA, 9082)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
CHIEF JOSEPH DAM											
January-----	33.6	20.3	27.0	51	-5	2	1.25	0.42	2.05	4	7.9
February----	40.5	25.1	32.8	58	-1	13	1.10	0.44	1.76	3	4.5
March-------	53.7	32.2	43.0	71	16	133	0.96	0.32	1.56	3	0.6
April-------	64.8	38.3	51.5	84	26	347	0.65	0.13	1.22	2	0.0
May---------	73.3	45.8	59.5	95	31	606	0.92	0.28	1.51	2	0.0
June--------	80.8	52.8	66.8	100	40	797	0.86	0.28	1.38	2	0.0
July--------	89.0	58.3	73.6	106	43	1,043	0.62	0.07	0.97	1	0.0
August------	89.2	57.7	73.5	105	43	1,036	0.44	0.03	0.72	1	0.0
September---	79.1	48.4	63.7	97	32	712	0.48	0.00	0.78	1	0.0
October-----	63.6	37.6	50.6	82	22	335	0.56	0.14	0.95	1	0.1
November----	45.3	30.3	37.8	65	9	58	1.44	0.49	2.32	4	2.6
December----	34.2	22.0	28.1	55	-2	5	1.61	0.60	2.48	5	11.2
Yearly:											
Average---	62.3	39.1	50.7	---	---	---	---	---	---	---	---
Extreme---	110.0	-15.0	---	107	-9	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,086	10.88	8.00	12.90	29	26.9

Average number of days per year with at least 1 inch of snow on the ground: 16

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
WATERVILLE											
January-----	31.8	17.0	24.4	49	-10	1	1.48	0.63	2.31	4	11.1
February----	36.6	21.3	29.0	52	-5	3	1.08	0.46	1.71	3	6.6
March-------	47.2	27.9	37.5	65	10	43	0.90	0.29	1.54	2	3.2
April-------	58.2	34.8	46.5	78	20	210	0.70	0.10	1.34	2	0.2
May---------	67.1	41.9	54.5	88	27	447	0.95	0.26	1.55	2	0.0
June--------	74.4	48.3	61.4	93	35	636	0.94	0.24	1.59	2	0.0
July--------	83.2	53.5	68.3	100	39	871	0.45	0.06	0.81	1	0.0
August------	83.2	53.6	68.4	99	39	877	0.56	0.04	0.80	1	0.0
September---	72.9	45.2	59.0	92	28	570	0.58	0.03	1.09	1	0.0
October-----	58.3	34.3	46.3	79	16	221	0.62	0.12	1.04	1	0.4
November----	39.8	25.0	32.4	58	2	15	1.59	0.69	2.41	5	7.1
December----	31.2	17.5	24.4	49	-8	1	1.62	0.65	2.60	5	14.4
Yearly:											
Average---	57.0	35.0	46.0	---	---	---	---	---	---	---	---
Extreme---	105.0	-23.0	---	100	-13	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,896	11.47	7.73	13.32	29	42.9

Average number of days per year with at least 1 inch of snow on the ground: 16

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
WENATCHEE FAA AP											
January-----	34.1	21.9	28.0	54	-3	5	1.17	0.57	1.75	4	10.4
February----	41.6	26.7	34.1	60	3	18	0.86	0.32	1.38	2	4.7
March-------	53.5	33.6	43.6	70	19	141	0.68	0.18	1.14	2	1.3
April-------	62.9	40.0	51.4	83	29	344	0.47	0.14	0.77	1	0.0
May---------	71.5	47.3	59.4	93	35	601	0.61	0.15	0.95	1	0.0
June--------	78.7	54.0	66.3	98	42	789	0.64	0.13	1.12	1	0.0
July--------	86.7	59.8	73.2	104	46	1,030	0.30	0.04	0.53	1	0.0
August------	86.1	59.7	72.9	102	47	1,020	0.35	0.00	0.59	0	0.0
September---	76.5	51.0	63.7	95	36	712	0.43	0.00	0.75	1	0.0
October-----	61.7	40.1	50.9	80	24	344	0.45	0.07	0.79	1	0.2
November----	43.9	30.4	37.2	63	12	49	1.15	0.53	1.71	3	4.3
December----	33.5	22.9	28.2	55	-1	4	1.43	0.53	2.20	4	12.0
Yearly:											
Average---	60.9	40.6	50.7	---	---	---	---	---	---	---	---
Extreme---	108.0	-15.0	---	104	-8	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,057	8.53	6.52	10.36	21	32.9

Average number of days per year with at least 1 inch of snow on the ground: 51

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40 degrees F)

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Chief Joseph Dam, WA, 1400; Waterville, WA, 9012; and Wenatchee FAA AP, WA, 9082)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
CHIEF JOSEPH DAM			
Last freezing temperature in spring:			
1 year in 10 later than--	March 31	April 26	May 8
2 years in 10 later than--	March 22	April 18	May 2
5 years in 10 later than--	March 6	April 3	April 21
First freezing temperature in fall:			
1 year in 10 earlier than--	October 20	October 9	September 25
2 years in 10 earlier than--	October 26	October 15	September 30
5 years in 10 earlier than--	November 7	October 27	October 10
WATERVILLE			
Last freezing temperature in spring:			
1 year in 10 later than--	April 27	May 17	May 30
2 years in 10 later than--	April 20	May 9	May 23
5 years in 10 later than--	April 7	April 24	May 11
First freezing temperature in fall:			
1 year in 10 earlier than than--	October 4	September 28	September 18
2 years in 10 earlier than--	October 10	October 2	September 23
5 years in 10 earlier than--	October 21	October 12	October 1

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
WENATCHEE FAA AP			
Last freezing temperature in spring:			
1 year in 10 later than--	March 19	April 9	April 24
2 years in 10 later than----------	March 12	April 1	April 20
5 years in 10 later than----------	February 27	March 17	April 11
First freezing temperature in fall:			
1 year in 10 earlier than----------	October 28	October 21	October 5
2 years in 10 earlier than----------	November 4	October 25	October 10
5 years in 10 earlier than----------	November 17	November 3	October 19

Table 3.--Growing Season

(Recorded in the period 1971-2000 at
Chief Joseph Dam, WA, 1400; Waterville, WA, 9012;
and Wenatchee FAA AP, WA, 9082)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
CHIEF JOSEPH DAM			
9 years in 10---	210	176	147
8 years in 10---	222	186	156
5 years in 10---	245	206	173
2 years in 10---	268	226	190
1 year in 10----	280	236	198
WATERVILLE			
9 years in 10---	163	138	115
8 years in 10---	173	148	124
5 years in 10---	192	168	141
2 years in 10---	211	188	159
1 year in 10----	221	199	168
WENATCHEE FAA AP			
9 years in 10---	233	204	169
8 years in 10---	243	213	177
5 years in 10---	263	230	190
2 years in 10---	284	246	204
1 year in 10----	294	255	211

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Aarup ashy fine sandy loam, 0 to 8 percent slopes	10,226	0.9
2	Aarup ashy fine sandy loam, 8 to 15 percent slopes	287	*
3	Aarup complex, 0 to 8 percent slopes	880	*
4	Achelake ashy fine sandy loam, 0 to 3 percent slopes	421	*
5	Aeneas fine sandy loam, 3 to 8 percent slopes	473	*
6	Alecanyon very cobbly ashy fine sandy loam, 3 to 30 percent slopes	1,104	*
7	Alecanyon very cobbly ashy loamy sand, 30 to 65 percent slopes, eroded	79	*
8	Alecanyon-Cachebutte complex, 0 to 8 percent slopes	3,606	0.3
9	Alecanyon-Cachebutte complex, 8 to 30 percent slopes	1,724	0.1
10	Alecanyon-Cachebutte-Nemire complex, 0 to 30 percent slopes	3,612	0.3
11	Alsash ashy fine sandy loam, 15 to 30 percent slopes	81	*
12	Alsash-Slusser complex, 0 to 8 percent slopes	1,487	0.1
13	Alsash-Slusser complex, 8 to 15 percent slopes	577	*
14	Alstown silt loam, 0 to 8 percent slopes	5,479	0.5
15	Alstown silt loam, 8 to 15 percent slopes	598	*
16	Alstown-Cheviot complex, 30 to 65 percent slopes	1,362	0.1
17	Alstown-Renslow complex, 0 to 8 percent slopes	5,472	0.5
18	Alstown-Renslow complex, 8 to 15 percent slopes	704	*
19	Aquolls, nearly level	1,661	0.1
20	Aquolls-Halaquepts complex, nearly level	4,580	0.4
21	Argabak very cobbly loam, 0 to 20 percent slopes	6,927	0.6
22	Argabak-Badge complex, 8 to 30 percent slopes	238	*
23	Argabak-Camaspatch-Badge complex, 30 to 65 percent slopes	5,416	0.5
24	Argabak-Haploxerolls-Siweeka complex, 0 to 30 percent slopes	2,304	0.2
25	Argabak-Horseflat complex, 0 to 30 percent slopes	12,200	1.0
26	Argabak-Horseflat-Toler complex, 0 to 20 percent slopes	12,011	1.0
27	Argabak-Horseflat-Zen complex, 0 to 20 percent slopes	7,361	0.6
28	Argabak-Morrow complex, 0 to 30 percent slopes	5,955	0.5
29	Argabak-Nemire-Siweeka complex, 0 to 30 percent slopes	563	*
30	Argabak-Rock outcrop complex, 0 to 35 percent slopes	6,510	0.6
31	Argabak-Tagear-Rock outcrop complex, 0 to 15 percent slopes	2,376	0.2
32	Argabak-Timentwa-Rock outcrop complex, 0 to 15 percent slopes	7,389	0.6
33	Argabak-Timentwa-Rock outcrop complex, warm, 0 to 15 percent slopes	17,815	1.5
34	Argabak-Winblow-Rock outcrop complex, 0 to 20 percent slopes	9,572	0.8
35	Badge very cobbly silt loam, 15 to 30 percent slopes	2,014	0.2
36	Badge very cobbly silt loam, 30 to 65 percent slopes	5,974	0.5
37	Badge-Bakeoven complex, 25 to 55 percent slopes	83	*
38	Badge-Dougville complex, 8 to 30 percent slopes	856	*
39	Badge-Stemilt complex, 3 to 30 percent slopes	465	*
40	Badge-Stemilt complex, 30 to 65 percent slopes	1,555	0.1
41	Bagdad silt loam, 0 to 8 percent slopes	1,197	0.1
42	Bagdad silt loam, cemented substratum, 0 to 8 percent slopes	2,513	0.2
43	Bagdad silt loam, cemented substratum, 8 to 15 percent slopes	313	*
44	Bakeoven very cobbly loam, 0 to 35 percent slopes	535	*
45	Bakeoven-Lickskillet-Zen complex, 5 to 25 percent slopes	461	*
46	Bakeoven-Roloff complex, 0 to 25 percent slopes	209	*
47	Bakeoven-Touhey complex, 0 to 25 percent slopes	1,158	*
48	Beca ashy fine sandy loam, 3 to 8 percent slopes	254	*
49	Beca ashy fine sandy loam, 8 to 15 percent slopes	252	*
50	Beca ashy fine sandy loam, 15 to 30 percent slopes	195	*
51	Beca-Camaspatch complex, 15 to 30 percent slopes	126	*
52	Beca-Dougville-Slickear complex, 15 to 40 percent slopes	375	*
53	Benwy silt loam, 3 to 8 percent slopes	3,340	0.3
54	Benwy silt loam, 8 to 15 percent slopes	765	*
55	Benwy-Alstown complex, 0 to 8 percent slopes	3,890	0.3
56	Benwy-Alstown complex, 8 to 15 percent slopes	632	*
57	Benwy-Selah-Alstown complex, 0 to 8 percent slopes	4,095	0.3
58	Benwy-Selah-Alstown complex, 8 to 15 percent slopes	4,026	0.3
59	Benwy-Selah-Alstown complex, 15 to 30 percent slopes	1,755	0.1
60	Beverly cobbly fine sandy loam, 0 to 8 percent slopes	589	*
61	Brays ashy fine sandy loam, 3 to 15 percent slopes	45	*
62	Brays-Entiat complex, 15 to 30 percent slopes	134	*
63	Brays-Entiat-Rock outcrop complex, 30 to 65 percent slopes	1,083	*
64	Broadax silt loam, 0 to 8 percent slopes	2,376	0.2
65	Broadax silt loam, 8 to 15 percent slopes	283	*
66	Broadax silt loam, cemented substratum, 3 to 8 percent slopes	2,081	0.2
67	Broadax silt loam, cemented substratum, 8 to 15 percent slopes	509	*
68	Broadax-Morrow-Spofford complex, 3 to 8 percent slopes	2,558	0.2
69	Broadax-Morrow-Spofford complex, 8 to 15 percent slopes	2,489	0.2
70	Broadax-Titchenal complex, 3 to 15 percent slopes	1,544	0.1
71	Burbank loamy fine sand, 0 to 8 percent slopes	882	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
72	Burbank loamy fine sand, 8 to 25 percent slopes	507	*
73	Burch fine sandy loam, 8 to 15 percent slopes	308	*
74	Burch loam, 0 to 3 percent slopes	616	*
75	Burch loam, 3 to 8 percent slopes	879	*
76	Cachebutte ashy sandy loam, 0 to 8 percent slopes	2,068	0.2
77	Cachebutte-Alecanyon-Haploxerolls complex, 0 to 30 percent slopes	3,327	0.3
78	Cachebutte-Nemire-Alecanyon complex, 0 to 8 percent slopes	7,189	0.6
79	Cashmere fine sandy loam, 0 to 3 percent slopes	1,122	*
80	Cashmere fine sandy loam, 3 to 8 percent slopes	4,515	0.4
81	Cashmere fine sandy loam, 8 to 15 percent slopes	759	*
82	Cashmere fine sandy loam, cemented substratum, 0 to 3 percent slopes	8	*
83	Cashmere fine sandy loam, cemented substratum, 3 to 8 percent slopes	114	*
84	Cashmere fine sandy loam, cemented substratum, 8 to 15 percent slopes	206	*
85	Cashmere-Willis complex, 15 to 30 percent slopes	151	*
86	Cashmere-Willis complex, 30 to 45 percent slopes	110	*
87	Cashmont gravelly sandy loam, 3 to 8 percent slopes	883	*
88	Cashmont gravelly sandy loam, 8 to 15 percent slopes	801	*
89	Cashmont sandy loam, 0 to 3 percent slopes	36	*
90	Cashmont sandy loam, 3 to 8 percent slopes	1,134	*
91	Cashmont sandy loam, 8 to 15 percent slopes	77	*
92	Chelan ashy fine sandy loam, 0 to 8 percent slopes	160	*
93	Chelan ashy fine sandy loam, 8 to 15 percent slopes	419	*
94	Chelan ashy fine sandy loam, 15 to 30 percent slopes	357	*
95	Chelan ashy fine sandy loam, bedrock substratum, 15 to 30 percent slopes	244	*
96	Chelan ashy fine sandy loam, gravelly substratum, 0 to 8 percent slopes	853	*
97	Chelan ashy fine sandy loam, gravelly substratum, 8 to 15 percent slopes	43	*
98	Chelan ashy fine sandy loam, gravelly substratum, 15 to 30 percent slopes	26	*
99	Cheviot-Ralls-Dougville complex, 8 to 15 percent slopes	1,347	0.1
100	Cheviot-Ralls-Grinrod complex, 15 to 30 percent slopes	5,428	0.5
101	Cheviot-Ralls-Rubble land complex, 30 to 65 percent slopes	7,169	0.6
102	Conconully complex, 0 to 8 percent slopes	1,820	0.2
103	Conconully complex, 8 to 15 percent slopes	804	*
104	Conconully complex, 15 to 30 percent slopes	138	*
105	Conconully-Swakane-Rock outcrop complex, 0 to 15 percent slopes	366	*
106	Conconully-Swakane-Rock outcrop complex, 15 to 30 percent slopes	1,934	0.2
107	Conconully-Swakane-Rock outcrop complex, 30 to 60 percent slopes	1,980	0.2
108	Conconully-Wagberg complex, 3 to 8 percent slopes	618	*
109	Conconully-Wagberg complex, 8 to 15 percent slopes	1,033	*
110	Conconully-Wagberg complex, 15 to 30 percent slopes	594	*
111	Conconully-Wagberg complex, 30 to 65 percent slopes	1,450	0.1
112	Corbaley-Kester complex, 0 to 5 percent slopes	792	*
113	Cordy-Stemilt complex, 3 to 30 percent slopes	1,466	0.1
114	Dam	42	*
115	Deercut ashy fine sandy loam, 0 to 8 percent slopes	3,321	0.3
116	Deercut-Aarup-Whiteye complex, 0 to 3 percent slopes	3,550	0.3
117	Deercut-Aarup-Whiteye complex, 3 to 8 percent slopes	5,232	0.4
118	Deercut-Aarup-Whiteye complex, 8 to 15 percent slopes	217	*
119	DelRio ashy fine sandy loam, 0 to 8 percent slopes	4,281	0.4
120	DelRio ashy fine sandy loam, 8 to 15 percent slopes	425	*
121	Dezellem-Brazlan complex, 3 to 15 percent slopes	3,228	0.3
122	Dezellem-Brazlan complex, 15 to 30 percent slopes	4,314	0.4
123	Dezellem-Brazlan complex, 30 to 45 percent slopes	1,735	0.1
124	Dezellem-Brazlan-Rock outcrop complex, 20 to 50 percent slopes	4,512	0.4
125	Dezellem-Stubblefield complex, 20 to 45 percent slopes	7,273	0.6
126	Dezellem-Timentwa-Rock outcrop complex, 20 to 70 percent slopes	2,471	0.2
127	Dezellem-Timentwa-Rock outcrop complex, warm, 20 to 70 percent slopes	4,110	0.3
128	Dinkels-Rock outcrop complex, 35 to 70 percent slopes	4,546	0.4
129	Dougville ashy fine sandy loam, 0 to 8 percent slopes	3,153	0.3
130	Dougville ashy fine sandy loam, 8 to 15 percent slopes	626	*
131	Dougville ashy fine sandy loam, 15 to 30 percent slopes	152	*
132	Dougville ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes	1,874	0.2
133	Dougville ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes	761	*
134	Dougville ashy fine sandy loam, cemented substratum, 15 to 30 percent slopes	80	*
135	Dougville-Badge complex, 30 to 65 percent slopes	434	*
136	Dougville-Farmer complex, 8 to 15 percent slopes	2,089	0.2
137	Dougville-Farmer-Dutchenry complex, 15 to 30 percent slopes	1,012	*
138	Dougville-Norax-Nemire complex, 0 to 25 percent slopes	5,417	0.5
139	Drysel silt loam, 5 to 15 percent slopes	304	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
140	Drysel-Wanapum complex, 5 to 15 percent slopes	1,014	*
141	Durixerolls-Ellisforde-Elvedere complex, 8 to 15 percent slopes	1,393	0.1
142	Durixerolls-Ellisforde-Elvedere complex, 15 to 30 percent slopes	2,203	0.2
143	Durixerolls-Ellisforde-Elvedere complex, 30 to 45 percent slopes	1,777	0.2
144	Durixerolls-Halaquepts complex, nearly level	4,867	0.4
145	Durixerolls-Halaquepts complex, undulating	2,122	0.2
146	Durixerolls-Halaquepts complex, nearly level to rolling	3,627	0.3
147	Durixerolls-Halaquepts complex, cool, nearly level	1,063	*
148	Durixerolls-Halaquepts complex, cool, undulating	1,115	*
149	Durixerolls-Halaquepts complex, cool, nearly level to rolling	1,406	0.1
150	Dutchenry ashy fine sandy loam, 0 to 8 percent slopes	1,025	*
151	Ebadlow silt loam, 3 to 8 percent slopes	415	*
152	Ebadlow-Spofford-Badgermont complex, 3 to 8 percent slopes	2,243	0.2
153	Ebadlow-Spofford-Badgermont complex, 8 to 15 percent slopes	422	*
154	Ellisforde fine sandy loam, 3 to 8 percent slopes	1,327	0.1
155	Ellisforde fine sandy loam, 30 to 60 percent slopes	378	*
156	Ellisforde very fine sandy loam, 0 to 8 percent slopes	288	*
157	Ellisforde loam, 0 to 15 percent slopes	429	*
158	Ellisforde-DelRio-Nyssaton complex, 30 to 65 percent slopes	1,758	0.1
159	Ellisforde-Halaquepts complex, 0 to 3 percent slopes	24	*
160	Ellisforde-Nespelem-Nemire complex, 0 to 8 percent slopes	695	*
161	Ellisforde-Nyssaton-DelRio complex, 15 to 30 percent slopes	731	*
162	Elvedere silt loam, 0 to 3 percent slopes	764	*
163	Elvedere silt loam, 3 to 8 percent slopes	677	*
164	Elvedere-Leahy complex, 0 to 8 percent slopes	396	*
165	Entiat-Rock outcrop-Torriorthents complex, 30 to 70 percent slopes	6,296	0.5
166	Entiat-Roosevelt-Rock outcrop complex, 8 to 30 percent slopes	368	*
167	Ephrata fine sandy loam, 2 to 5 percent slopes	7	*
168	Esquatzel silt loam, 0 to 3 percent slopes	3,928	0.3
169	Esquatzel silt loam, cemented substratum, 0 to 3 percent slopes	166	*
170	Esquatzel silt loam, channeled, 0 to 3 percent slopes	656	*
171	Ewall loamy fine sand, 3 to 15 percent slopes	154	*
172	Ewall-Alecanyon complex, 3 to 15 percent slopes	127	*
173	Farmer ashy fine sandy loam, 0 to 8 percent slopes	10,908	0.9
174	Farmer ashy fine sandy loam, 8 to 15 percent slopes	771	*
175	Farmer ashy fine sandy loam, 15 to 30 percent slopes	88	*
176	Farmer ashy fine sandy loam, cemented substratum, 3 to 8 percent slopes	2,500	0.2
177	Farmer ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes	674	*
178	Farrell very fine sandy loam, 0 to 5 percent slopes	480	*
179	Finley gravelly fine sandy loam, 0 to 15 percent slopes	8	*
180	Finley very cobbly fine sandy loam, 0 to 15 percent slopes	1	*
181	Finley stony loam, 3 to 8 percent slopes	701	*
182	Ginnis fine sandy loam, 3 to 15 percent slopes	252	*
183	Ginnis fine sandy loam, 15 to 30 percent slopes	31	*
184	Ginnis-Swakane-Rock outcrop complex, 30 to 70 percent slopes	1,376	0.1
185	Grinrod-Ralls-Argabak complex, 8 to 50 percent slopes	9,650	0.8
186	Grinrod-Ralls-Rubble land complex, 30 to 70 percent slopes	4,205	0.4
187	Grinrod-Rock outcrop-Rubble land complex, 30 to 70 percent slopes	20,559	1.7
188	Halaquepts complex, nearly level	8,721	0.7
189	Hanning silt loam, 3 to 8 percent slopes	744	*
190	Hanning-McCue-Badgermont complex, 3 to 8 percent slopes	507	*
191	Hanning-McCue-Badgermont complex, 8 to 15 percent slopes	278	*
192	Haploxerolls, nearly level to gently sloping	2,663	0.2
193	Haploxerolls, moderately well drained, nearly level to gently sloping	1,794	0.2
194	Haploxerolls-Aquolls-Halaquepts complex, nearly level to gently sloping	4,152	0.4
195	Heytou-Stubblefield complex, 3 to 15 percent slopes	15,573	1.3
196	Heytou-Stubblefield complex, 15 to 30 percent slopes	11,951	1.0
197	Heytou-Stubblefield complex, 30 to 45 percent slopes	3,497	0.3
198	Heytou-Stubblefield-Rock outcrop complex, 20 to 50 percent slopes	11,308	1.0
199	Heytou-Stubblefield-Siweeka complex, 0 to 20 percent slopes	8,043	0.7
200	Heytou-Timentwa-Strat complex, 20 to 70 percent slopes	2,264	0.2
201	Jordy ashy fine sandy loam, 0 to 8 percent slopes	981	*
202	Jordy ashy fine sandy loam, 8 to 15 percent slopes	738	*
203	Jordy ashy fine sandy loam, 15 to 30 percent slopes	302	*
204	Jordy-Argabak complex, 3 to 8 percent slopes	229	*
205	Jordy-Argabak complex, 8 to 15 percent slopes	564	*
206	Jordy-Argabak complex, 15 to 30 percent slopes	283	*
207	Jordy-Camaspatch complex, 3 to 8 percent slopes	84	*
208	Jordy-Camaspatch complex, 8 to 15 percent slopes	215	*
209	Jordy-Camaspatch complex, 15 to 30 percent slopes	675	*
210	Kester ashy fine sandy loam, 0 to 5 percent slopes	5,482	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
211	Kiakus-Shinn-Lorena complex, 3 to 30 percent slopes	1,767	0.1
212	Kiakus-Shinn-Lorena complex, 30 to 60 percent slopes	291	*
213	Kiona cobbly very fine sandy loam, 25 to 65 percent slopes	7	*
214	Kiona-Rock outcrop complex, 25 to 65 percent slopes	240	*
215	Leahy-Elvedere-Halaquepts complex, 0 to 3 percent slopes	638	*
216	Leidl-Stemilt complex, 3 to 15 percent slopes	306	*
217	Leidl-Stemilt complex, 15 to 30 percent slopes	1,349	0.1
218	Lickskillet very cobbly loam, 0 to 15 percent slopes	281	*
219	Lickskillet very cobbly loam, 15 to 35 percent slopes	22	*
220	Lickskillet very cobbly loam, 35 to 65 percent slopes	168	*
221	Lickskillet-Brazlan-Dezellem complex, 0 to 20 percent slopes	3,575	0.3
222	Logy cobbly sandy loam, 3 to 15 percent slopes	2,549	0.2
223	Logy cobbly sandy loam, 15 to 30 percent slopes	130	*
224	Logy very stony sandy loam, 3 to 15 percent slopes	1,458	0.1
225	Lorena silt loam, 3 to 15 percent slopes	783	*
226	Lorena silt loam, 15 to 30 percent slopes	178	*
227	Lorena-Broadax complex, 3 to 15 percent slopes	1,002	*
228	Lorena-Shinn complex, 3 to 30 percent slopes	5,579	0.5
229	Magallon fine sandy loam, 3 to 8 percent slopes	1,416	0.1
230	Magallon fine sandy loam, 8 to 15 percent slopes	140	*
231	Malaga gravelly fine sandy loam, 0 to 8 percent slopes	1,667	0.1
232	Malaga cobbly fine sandy loam, 0 to 8 percent slopes	667	*
233	McCue-Broadax complex, 3 to 8 percent slopes	56	*
234	McCue-Broadax complex, 8 to 15 percent slopes	97	*
235	McCue-Broadax complex, 15 to 30 percent slopes	173	*
236	McCue-Broadax-Mondovi complex, 0 to 8 percent slopes	619	*
237	McCue-Broadax-Mondovi complex, 3 to 15 percent slopes	587	*
238	Morrow silt loam, 0 to 3 percent slopes	231	*
239	Morrow silt loam, 3 to 8 percent slopes	1,730	0.1
240	Morrow silt loam, 8 to 15 percent slopes	956	*
241	Morrow-Argabak complex, 3 to 8 percent slopes	1,471	0.1
242	Morrow-Argabak complex, 8 to 15 percent slopes	951	*
243	Morrow-Argabak-Badge complex, 15 to 30 percent slopes	720	*
244	Nemire ashy fine sandy loam, 0 to 3 percent slopes	3,325	0.3
245	Nemire ashy fine sandy loam, 3 to 8 percent slopes	130	*
246	Nemire ashy fine sandy loam, sandy substratum, 0 to 3 percent slopes	199	*
247	Nespelem-Nemire complex, 0 to 8 percent slopes	868	*
248	Nespelem-Nemire complex, 8 to 15 percent slopes	149	*
249	Norax silt loam, 8 to 15 percent slopes	166	*
250	Norax-Dutchenry-Dougville complex, 3 to 8 percent slopes	532	*
251	Norax-Dutchenry-Dougville complex, 8 to 15 percent slopes	2,034	0.2
252	Norax-Dutchenry-Dougville complex, 15 to 30 percent slopes	1,812	0.2
253	Pateros-Rock outcrop complex, 25 to 70 percent slopes	1,454	0.1
254	Peshastin fine sandy loam, 3 to 8 percent slopes	654	*
255	Peshastin fine sandy loam, 8 to 15 percent slopes	837	*
256	Peshastin fine sandy loam, 15 to 30 percent slopes	683	*
257	Peshastin fine sandy loam, compacted substratum, 3 to 8 percent slopes	700	*
258	Peshastin fine sandy loam, compacted substratum, 8 to 15 percent slopes	296	*
259	Peshastin stony fine sandy loam, 8 to 15 percent slopes	141	*
260	Peshastin stony fine sandy loam, 30 to 60 percent slopes	627	*
261	Pogue fine sandy loam, 0 to 3 percent slopes	1,049	*
262	Pogue fine sandy loam, 3 to 8 percent slopes	3,139	0.3
263	Pogue fine sandy loam, 8 to 15 percent slopes	192	*
264	Pogue gravelly fine sandy loam, 8 to 15 percent slopes	548	*
265	Pogue gravelly fine sandy loam, 15 to 25 percent slopes	594	*
266	Pogue cobbly fine sandy loam, 0 to 15 percent slopes	2,521	0.2
267	Pogue cobbly fine sandy loam, 30 to 65 percent slopes	556	*
268	Pogue extremely stony fine sandy loam, 3 to 25 percent slopes	1,987	0.2
269	Pogue bouldery fine sandy loam, 3 to 8 percent slopes	337	*
270	Pogue loam, 8 to 15 percent slopes	1,006	*
271	Prosser-Starbuck complex, 15 to 45 percent slopes	5	*
272	Quincy fine sand, 15 to 30 percent slopes	671	*
273	Quincy fine sand, high precipitation, 3 to 15 percent slopes	1,591	0.1
274	Quincy loamy fine sand, 0 to 15 percent slopes	8,754	0.7
275	Quincy-DelRio-Sanbee complex, 20 to 60 percent slopes	1,942	0.2
276	Quincy-Ellisforde-Cashmere complex, 3 to 15 percent slopes	1,067	*
277	Quincy-Ellisforde-Cashmere complex, 30 to 60 percent slopes	1,779	0.2
278	Quincy-Sanbee-DelRio complex, 0 to 20 percent slopes	1,171	*
279	Ralls silt loam, 3 to 25 percent slopes	9	*
280	Ralls silt loam, 25 to 55 percent slopes	25	*
281	Renshigh-Alstown-Renslow complex, 3 to 15 percent slopes	734	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
282	Renshigh-Alstown-Renslow complex, 15 to 30 percent slopes	468	*
283	Renslow silt loam, 0 to 8 percent slopes	18,338	1.6
284	Renslow silt loam, 8 to 15 percent slopes	1,738	0.1
285	Renslow silt loam, 15 to 30 percent north slopes	151	*
286	Renslow silt loam, 15 to 30 percent south slopes	184	*
287	Renslow silt loam, cemented substratum, 0 to 8 percent slopes	15,145	1.3
288	Renslow silt loam, cemented substratum, 8 to 15 percent slopes	3,458	0.3
289	Renslow silt loam, cemented substratum, 15 to 30 percent slopes	1,069	*
290	Renslow-Achelake-Willis complex, 8 to 15 percent slopes	3,132	0.3
291	Renslow-Achelake-Willis complex, 15 to 30 percent slopes	1,111	*
292	Renslow-Alstown-Kester complex, 3 to 8 percent slopes	2,573	0.2
293	Renslow-Alstown-Kester complex, 8 to 15 percent slopes	3,142	0.3
294	Renslow-Alstown-Kester complex, 15 to 30 percent slopes	173	*
295	Ritzville silt loam, 3 to 8 percent slopes	339	*
296	Ritzville silt loam, 15 to 30 percent north slopes	294	*
297	Ritzville silt loam, cemented substratum, 0 to 8 percent slopes	1,310	0.1
298	Ritzville silt loam, cemented substratum, 8 to 15 percent slopes	1,797	0.2
299	Ritzville silt loam, cemented substratum, 15 to 30 percent slopes	208	*
300	Ritzville silt loam, cemented substratum, 30 to 65 percent slopes	1,058	*
301	Riverwash	133	*
302	Rock outcrop-Couleedam-Roosevelt complex, 30 to 70 percent slopes	2,784	0.2
303	Rock outcrop-Ginnis-Swakane complex, 30 to 70 percent slopes	994	*
304	Roloff-Bakeoven complex, 5 to 25 percent slopes	14	*
305	Royal loamy fine sand, 0 to 10 percent slopes	20	*
306	Rubble land-Rock outcrop complex, very steep	9,835	0.8
307	Rubble land-Stemilt-Rock outcrop complex, 30 to 65 percent slopes	1,199	0.1
308	Sagehill very fine sandy loam, 10 to 15 percent slopes	1	*
309	Sanbee loamy fine sand, 0 to 15 percent slopes	1,133	*
310	Sanbee ashy sandy loam, 0 to 8 percent slopes	576	*
311	Sanbee ashy fine sandy loam, 0 to 8 percent slopes	1,575	0.1
312	Sanbee-Quincy complex, 0 to 3 percent slopes	428	*
313	Schawana complex, 0 to 15 percent slopes	12	*
314	Selah silt loam, 0 to 8 percent slopes	749	*
315	Sevar ashy fine sandy loam, 3 to 8 percent slopes	979	*
316	Shinn-Lorena complex, 30 to 65 percent slopes	794	*
317	Silico ashy fine sandy loam, 0 to 8 percent slopes	356	*
318	Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes	2,981	0.3
319	Silico-Sevar-Dutchenry complex, 8 to 15 percent slopes	779	*
320	Silico-Sevar-Dutchenry complex, 15 to 30 percent slopes	278	*
321	Simsfield ashy fine sandy loam, 0 to 3 percent slopes	5,116	0.4
322	Simsfield ashy fine sandy loam, 3 to 8 percent slopes	3,184	0.3
323	Simsfield ashy fine sandy loam, 8 to 15 percent slopes	442	*
324	Simsfield-Ellisforde-DelRio complex, 0 to 15 percent slopes	8,355	0.7
325	Simsfield-Zeemal complex, 0 to 8 percent slopes	1,483	0.1
326	Simsfield-Zeemal complex, 8 to 30 percent slopes	260	*
327	Siweeka complex, 0 to 8 percent slopes	12,844	1.1
328	Siweeka complex, 8 to 15 percent slopes	2,970	0.3
329	Siweeka complex, 15 to 30 percent slopes	646	*
330	Siweeka-Argabak complex, 0 to 15 percent slopes	1,213	0.1
331	Siweeka-Argabak-Rock outcrop complex, 15 to 30 percent slopes	235	*
332	Siweeka-Argabak-Rock outcrop complex, 30 to 65 percent slopes	127	*
333	Siweeka-Brazlan complex, 0 to 8 percent slopes	13,364	1.1
334	Siweeka-Brazlan complex, 8 to 15 percent slopes	5,191	0.4
335	Siweeka-Brazlan complex, 15 to 30 percent slopes	899	*
336	Siweeka-Brazlan-Brazlan extremely bouldery complex, 3 to 15 percent slopes	864	*
337	Siweeka-Brazlan-Argabak complex, 0 to 20 percent slopes	4,874	0.4
338	Siweeka-Lickskillet-Argabak complex, 0 to 20 percent slopes	1,660	0.1
339	Siweeka-Stubblefield-Timentwa complex, 0 to 15 percent slopes	4,687	0.4
340	Siweeka-Timentwa-Dezellem complex, 0 to 15 percent slopes	4,834	0.4
341	Siweeka-Timentwa-Stubblefield complex, 15 to 40 percent slopes	1,434	0.1
342	Skaha cobbly loamy sand, 0 to 8 percent slopes	728	*
343	Skaha very cobbly loamy sand, 0 to 15 percent slopes	815	*
344	Skaha very cobbly loamy sand, 30 to 65 percent slopes	420	*
345	Skaha-Quincy complex, 3 to 15 percent slopes	1,504	0.1
346	Skaha-Tubspring complex, 0 to 8 percent slopes	245	*
347	Slickear ashy fine sandy loam, 0 to 8 percent slopes	1,432	0.1
348	Slickear ashy fine sandy loam, 8 to 15 percent slopes	422	*
349	Slusser ashy fine sandy loam, 0 to 8 percent slopes	3,751	0.3
350	Slusser ashy fine sandy loam, 8 to 15 percent slopes	322	*
351	Slusser ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes	963	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
352	Slusser ashy fine sandy loam, cemented substratum, 8 to 30 percent slopes	177	*
353	Slusser ashy fine sandy loam, indurated substratum, 3 to 8 percent slopes	511	*
354	Slusser-Alsash-Nemire complex, 3 to 8 percent slopes	1,180	*
355	Slusser-Alsash-Nemire complex, 8 to 15 percent slopes	539	*
356	Soaplake-Roosevelt-Rock outcrop complex, 0 to 30 percent slopes	2,449	0.2
357	Soaplake-Roosevelt-Rock outcrop complex, 30 to 65 percent slopes	3,239	0.3
358	Sprauer ashy fine sandy loam, 0 to 8 percent slopes	3,684	0.3
359	Sprauer ashy fine sandy loam, 8 to 30 percent slopes	145	*
360	St. Andrews ashy loam, 0 to 3 percent slopes	2,660	0.2
361	St. Andrews ashy loam, 3 to 8 percent slopes	2,122	0.2
362	Starbuck-Bakeoven-Rock outcrop complex, 0 to 45 percent slopes	13	*
363	Stemilt-Cordy complex, 30 to 60 percent slopes	1,396	0.1
364	Strat very cobbly sandy loam, 0 to 10 percent slopes	4,180	0.4
365	Strat very cobbly sandy loam, 10 to 30 percent slopes	3,198	0.3
366	Strat very cobbly sandy loam, 30 to 65 percent slopes	1,626	0.1
367	Strat cobbly loam, 0 to 15 percent slopes	272	*
368	Strat stony loam, 0 to 25 percent slopes	16	*
369	Strat silt loam, 0 to 3 percent slopes	417	*
370	Strat very stony silt loam, 0 to 8 percent slopes	874	*
371	Strat-Tubspring complex, 0 to 8 percent slopes	19,785	1.7
372	Strat-Tubspring complex, 8 to 30 percent slopes	6,320	0.5
373	Strat-Tubspring-DelRio complex, 0 to 30 percent slopes	5,855	0.5
374	Strat-Tubspring-Nemire complex, 0 to 30 percent slopes	7,862	0.7
375	Strat-Tubspring-Skaha complex, 0 to 15 percent slopes	3,692	0.3
376	Stratford silt loam, 0 to 3 percent slopes	67	*
377	Stratford silt loam, 3 to 8 percent slopes	140	*
378	Stratford silt loam, 8 to 15 percent slopes	25	*
379	Stubblefield stony loam, 45 to 70 percent slopes	578	*
380	Supplee ashy very fine sandy loam, 3 to 8 percent slopes	1,117	*
381	Supplee ashy very fine sandy loam, 8 to 15 percent slopes	830	*
382	Tagear ashy fine sandy loam, 0 to 8 percent slopes	10,858	0.9
383	Tagear ashy fine sandy loam, 8 to 15 percent slopes	1,056	*
384	Tagear ashy fine sandy loam, 15 to 30 percent slopes	571	*
385	Taunton fine sandy loam, 10 to 15 percent slopes	46	*
386	Taunton silt loam, 5 to 10 percent slopes	58	*
387	Taunton silt loam, 15 to 25 percent slopes	3	*
388	Taunton-Finley complex, 0 to 10 percent slopes	5	*
389	Taunton-Scoon complex, 3 to 8 percent slopes	293	*
390	Taunton-Scoon complex, 8 to 15 percent slopes	305	*
391	Terlan silt loam, 0 to 8 percent slopes	420	*
392	Terlan-Selah complex, 0 to 8 percent slopes	1,804	0.2
393	Timentwa ashy fine sandy loam, 0 to 8 percent slopes	6,277	0.5
394	Timentwa ashy fine sandy loam, 8 to 15 percent slopes	550	*
395	Timentwa ashy fine sandy loam, 15 to 30 percent slopes	44	*
396	Timentwa-Lickskillet-Argabak complex, 0 to 15 percent slopes	10,042	0.8
397	Timentwa-Lickskillet-Argabak complex, warm, 0 to 15 percent slopes	14,254	1.2
398	Timentwa-Siweeka complex, 3 to 8 percent slopes	4,480	0.4
399	Timentwa-Siweeka complex, 8 to 15 percent slopes	1,873	0.2
400	Timentwa-Siweeka complex, 15 to 30 percent slopes	1,022	*
401	Timentwa-Siweeka-Brazlan complex, 0 to 15 percent slopes	791	*
402	Timentwa-Siweeka-Dezellem complex, 30 to 60 percent slopes	792	*
403	Timmerman coarse sandy loam, 0 to 3 percent slopes	168	*
404	Timmerman coarse sandy loam, 3 to 8 percent slopes	193	*
405	Timmerman coarse sandy loam, 8 to 15 percent slopes	235	*
406	Titchenal silt loam, 3 to 8 percent slopes	205	*
407	Titchenal silt loam, 8 to 15 percent slopes	309	*
408	Toler ashy fine sandy loam, 0 to 8 percent slopes	6,133	0.5
409	Toler ashy fine sandy loam, 8 to 15 percent slopes	784	*
410	Toler ashy fine sandy loam, 15 to 30 percent slopes	121	*
411	Toler ashy silt loam, 0 to 3 percent slopes	3,844	0.3
412	Toler ashy silt loam, 3 to 8 percent slopes	12,234	1.0
413	Toler ashy silt loam, 8 to 15 percent slopes	3,582	0.3
414	Toler ashy silt loam, 15 to 30 percent slopes	235	*
415	Toler-Argabak-Horseflat complex, 0 to 20 percent slopes	81	*
416	Toler-Corbaley complex, 3 to 8 percent slopes	2,328	0.2
417	Toler-Corbaley complex, 8 to 15 percent slopes	1,583	0.1
418	Toler-Corbaley complex, 15 to 30 percent slopes	220	*
419	Toler-Horseflat complex, 0 to 3 percent slopes	293	*
420	Toler-Horseflat complex, 3 to 8 percent slopes	7,095	0.6
421	Toler-Horseflat complex, 8 to 15 percent slopes	5,098	0.4
422	Toler-Horseflat complex, 15 to 30 percent slopes	960	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
423	Toler-Horseflat-Benwy complex, 3 to 8 percent slopes	3,687	0.3
424	Toler-Horseflat-Ralls complex, 8 to 15 percent slopes	6,540	0.6
425	Toler-Horseflat-Ralls complex, 15 to 30 percent slopes	2,660	0.2
426	Toler-Kester complex, 3 to 8 percent slopes	939	*
427	Torriorthents, very steep	10,225	0.9
428	Touhey complex, 0 to 8 percent slopes	60,328	5.1
429	Touhey complex, 8 to 15 percent slopes	5,293	0.4
430	Touhey complex, 15 to 30 percent slopes	1,207	0.1
431	Touhey ashy fine sandy loam, low elevation, 3 to 8 percent slopes	282	*
432	Touhey ashy fine sandy loam, low elevation, 8 to 15 percent slopes	1,015	*
433	Touhey ashy fine sandy loam, low elevation, 15 to 30 percent slopes	452	*
434	Touhey-Argabak complex, 0 to 15 percent slopes	5,150	0.4
435	Touhey-Argabak-Rock outcrop complex, 15 to 30 percent slopes	926	*
436	Touhey-Argabak-Rock outcrop complex, 30 to 65 percent slopes	1,107	*
437	Touhey-Lickskillet-Argabak complex, 0 to 15 percent slopes	5,564	0.5
438	Touhey-Stubblefield complex, 0 to 8 percent slopes	53,837	4.6
439	Touhey-Stubblefield complex, 8 to 15 percent slopes	10,219	0.9
440	Touhey-Stubblefield complex, 15 to 30 percent slopes	1,517	0.1
441	Touhey-Stubblefield-Stubblefield extremely bouldery complex, 3 to 15 percent slopes	851	*
442	Touhey-Stubblefield-Tagear complex, 0 to 15 percent slopes	4,222	0.4
443	Tubspring ashy fine sandy loam, 0 to 8 percent slopes	3,832	0.3
444	Tubspring ashy fine sandy loam, 8 to 15 percent slopes	196	*
445	Tubspring ashy fine sandy loam, thin solum, 0 to 3 percent slopes	801	*
446	Tubspring-DelRio-Strat complex, 0 to 8 percent slopes	14,911	1.3
447	Van Nostern silt loam, 3 to 8 percent slopes	485	*
448	Van Nostern silt loam, 8 to 15 percent slopes	529	*
449	Van Nostern silt loam, 15 to 30 percent slopes	358	*
450	Van Nostern-Argabak-Camaspatch complex, 3 to 30 percent slopes	4,579	0.4
451	Van Nostern-Camaspatch complex, 3 to 8 percent slopes	196	*
452	Van Nostern-Camaspatch complex, 8 to 15 percent slopes	388	*
453	Van Nostern-Camaspatch complex, 15 to 30 percent slopes	204	*
454	Vitrandic Argixerolls-Argabak complex, 30 to 60 percent slopes	7,151	0.6
455	Warden very fine sandy loam, 3 to 8 percent slopes	183	*
456	Watco ashy fine sandy loam, 30 to 60 percent slopes	61	*
457	Watco-Dezellem-Timentwa complex, 3 to 35 percent slopes	1,805	0.2
458	Water	19,098	1.6
459	Waterflat ashy fine sandy loam, 0 to 3 percent slopes	1,047	*
460	Wellsdam ashy fine sandy loam, 3 to 8 percent slopes	361	*
461	Wellsdam ashy fine sandy loam, 8 to 15 percent slopes	657	*
462	Wellsdam ashy fine sandy loam, 15 to 30 percent slopes	1,125	*
463	Wellsdam ashy fine sandy loam, 30 to 65 percent slopes	5,236	0.4
464	Wellsdam-Couleedam-Rock outcrop complex, 3 to 30 percent slopes	1,608	0.1
465	Wellsdam-Couleedam-Rock outcrop complex, 30 to 60 percent slopes	3,816	0.3
466	Wellsdam-Peshastin complex, 3 to 8 percent slopes	260	*
467	Wellsdam-Peshastin complex, 8 to 15 percent slopes	458	*
468	Wellsdam-Peshastin complex, 15 to 30 percent slopes	110	*
469	Whiteye ashy fine sandy loam, 0 to 8 percent slopes	1,126	*
470	Willis silt loam, 0 to 3 percent slopes	551	*
471	Willis silt loam, 3 to 8 percent slopes	997	*
472	Willis silt loam, 8 to 15 percent slopes	234	*
473	Willock ashy fine sandy loam, 0 to 8 percent slopes	585	*
474	Willock ashy fine sandy loam, 8 to 15 percent slopes	53	*
475	Willock complex, 8 to 15 percent slopes	373	*
476	Willock complex, 15 to 30 percent slopes	250	*
477	Willock complex, 30 to 60 percent slopes	1,354	0.1
478	Willock-Conconully complex, 3 to 8 percent slopes	90	*
479	Willock-Conconully complex, 8 to 15 percent slopes	276	*
480	Willock-Conconully complex, 15 to 30 percent slopes	154	*
481	Willock-Watco complex, 15 to 30 percent slopes	257	*
482	Willock-Watco complex, 30 to 60 percent slopes	775	*
483	Winblow ashy fine sandy loam, 0 to 8 percent slopes	800	*
484	Winblow ashy fine sandy loam, 8 to 15 percent slopes	252	*
485	Winblow-Argabak-Horseflat complex, 0 to 20 percent slopes	4,722	0.4
486	Xerofluvents-Beverly association, 0 to 15 percent slopes	1,899	0.2
487	Zeemal ashy fine sandy loam, 0 to 3 percent slopes	684	*
488	Zeemal ashy fine sandy loam, 3 to 8 percent slopes	287	*
489	Zen silt loam, 0 to 3 percent slopes	111	*
490	Zen silt loam, 3 to 8 percent slopes	1,548	0.1
491	Zen silt loam, 8 to 15 percent slopes	603	*
492	Zen silt loam, 15 to 30 percent slopes	66	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
493	Zen-Argabak-Horseflat complex, 0 to 20 percent slopes	8,638	0.7
494	Zen-Horseflat complex, 3 to 8 percent slopes	858	*
495	Zen-Horseflat complex, 8 to 15 percent slopes	191	*
496	Zen-Horseflat-Benwy complex, 3 to 8 percent slopes	567	*
497	Zen-Horseflat-Ralls complex, 8 to 15 percent slopes	793	*
498	Zen-Horseflat-Ralls complex, 15 to 30 percent slopes	199	*
499	Zen-Lickskillet-Ralls complex, 5 to 45 percent slopes	340	*
500	Pits	163	*
	Total	1,182,950	100.0

* Less than 0.1 percent.

Table 5.--Prime Farmland and Other Important Farmland

(Only the soils considered prime farmland or other important farmland are listed. Urban or built-up areas of the soils listed are not considered important farmland)

Map symbol	Soil name	Farmland classification
4	Achelake ashy fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
5	Aeneas fine sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
10	Alecanyon-Cachebutte-Nemire complex, 0 to 30 percent slopes	Farmland of statewide importance
11	Alsash ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
12	Alsash-Slusser complex, 0 to 8 percent slopes	Prime farmland if irrigated
13	Alsash-Slusser complex, 8 to 15 percent slopes	Farmland of statewide importance
14	Alstown silt loam, 0 to 8 percent slopes	Prime farmland if irrigated
15	Alstown silt loam, 8 to 15 percent slopes	Farmland of statewide importance
17	Alstown-Renslow complex, 0 to 8 percent slopes	Prime farmland if irrigated
18	Alstown-Renslow complex, 8 to 15 percent slopes	Farmland of statewide importance
24	Argabak-Haploxerolls-Siweeka complex, 0 to 30 percent slopes	Farmland of statewide importance
29	Argabak-Nemire-Siweeka complex, 0 to 30 percent slopes	Farmland of statewide importance
38	Badge-Dougville complex, 8 to 30 percent slopes	Farmland of statewide importance
41	Bagdad silt loam, 0 to 8 percent slopes	Prime farmland if irrigated
42	Bagdad silt loam, cemented substratum, 0 to 8 percent slopes	Prime farmland if irrigated
43	Bagdad silt loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance
48	Beca ashy fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
49	Beca ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
50	Beca ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
51	Beca-Camaspatch complex, 15 to 30 percent slopes	Farmland of statewide importance
52	Beca-Dougville-Slickear complex, 15 to 40 percent slopes	Farmland of statewide importance
53	Benwy silt loam, 3 to 8 percent slopes	Farmland of statewide importance
54	Benwy silt loam, 8 to 15 percent slopes	Farmland of statewide importance
55	Benwy-Alstown complex, 0 to 8 percent slopes	Prime farmland if irrigated
56	Benwy-Alstown complex, 8 to 15 percent slopes	Farmland of statewide importance
57	Benwy-Selah-Alstown complex, 0 to 8 percent slopes	Prime farmland if irrigated
58	Benwy-Selah-Alstown complex, 8 to 15 percent slopes	Farmland of statewide importance
59	Benwy-Selah-Alstown complex, 15 to 30 percent slopes	Farmland of statewide importance
60	Beverly cobbly fine sandy loam, 0 to 8 percent slopes	Farmland of statewide importance
61	Brays ashy fine sandy loam, 3 to 15 percent slopes	Farmland of unique importance
62	Brays-Entiat complex, 15 to 30 percent slopes	Farmland of unique importance
64	Broadax silt loam, 0 to 8 percent slopes	Prime farmland if irrigated
65	Broadax silt loam, 8 to 15 percent slopes	Farmland of statewide importance
66	Broadax silt loam, cemented substratum, 3 to 8 percent slopes	Farmland of statewide importance
67	Broadax silt loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance
68	Broadax-Morrow-Spofford complex, 3 to 8 percent slopes	Farmland of statewide importance
69	Broadax-Morrow-Spofford complex, 8 to 15 percent slopes	Farmland of statewide importance
70	Broadax-Titchenal complex, 3 to 15 percent slopes	Farmland of statewide importance
72	Burbank loamy fine sand, 8 to 25 percent slopes	Farmland of unique importance
73	Burch fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
74	Burch loam, 0 to 3 percent slopes	Prime farmland if irrigated
75	Burch loam, 3 to 8 percent slopes	Farmland of statewide importance
76	Cachebutte ashy sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
77	Cachebutte-Alecanyon-Haploxerolls complex, 0 to 30 percent slopes	Farmland of statewide importance
78	Cachebutte-Nemire-Alecanyon complex, 0 to 8 percent slopes	Prime farmland if irrigated
79	Cashmere fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
80	Cashmere fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
81	Cashmere fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
82	Cashmere fine sandy loam, cemented substratum, 0 to 3 percent slopes	Prime farmland if irrigated
83	Cashmere fine sandy loam, cemented substratum, 3 to 8 percent slopes	Farmland of statewide importance
84	Cashmere fine sandy loam, cemented substratum, 8 to 15 percent slopes	Farmland of unique importance
85	Cashmere-Willis complex, 15 to 30 percent slopes	Farmland of statewide importance
87	Cashmont gravelly sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
88	Cashmont gravelly sandy loam, 8 to 15 percent slopes	Farmland of unique importance
89	Cashmont sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
90	Cashmont sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
91	Cashmont sandy loam, 8 to 15 percent slopes	Farmland of unique importance

Table 5.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
92	Chelan ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
93	Chelan ashy fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
94	Chelan ashy fine sandy loam, 15 to 30 percent slopes	Farmland of unique importance
95	Chelan ashy fine sandy loam, bedrock substratum, 15 to 30 percent slopes	Farmland of statewide importance
96	Chelan ashy fine sandy loam, gravelly substratum, 0 to 8 percent slopes	Prime farmland if irrigated
97	Chelan ashy fine sandy loam, gravelly substratum, 8 to 15 percent slopes	Farmland of unique importance
98	Chelan ashy fine sandy loam, gravelly substratum, 15 to 30 percent slopes	Farmland of unique importance
102	Conconully complex, 0 to 8 percent slopes	Prime farmland if irrigated
103	Conconully complex, 8 to 15 percent slopes	Farmland of statewide importance
104	Conconully complex, 15 to 30 percent slopes	Farmland of statewide importance
108	Conconully-Wagberg complex, 3 to 8 percent slopes	Prime farmland if irrigated
109	Conconully-Wagberg complex, 8 to 15 percent slopes	Farmland of statewide importance
110	Conconully-Wagberg complex, 15 to 30 percent slopes	Farmland of statewide importance
112	Corbaley-Kester complex, 0 to 5 percent slopes	Prime farmland if irrigated
113	Cordy-Stemilt complex, 3 to 30 percent slopes	Farmland of statewide importance
115	Deercut ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
119	DelRio ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
120	DelRio ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
129	Dougville ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
130	Dougville ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
131	Dougville ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
132	Dougville ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes	Prime farmland if irrigated
133	Dougville ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance
134	Dougville ashy fine sandy loam, cemented substratum, 15 to 30 percent slopes	Farmland of statewide importance
136	Dougville-Farmer complex, 8 to 15 percent slopes	Farmland of statewide importance
137	Dougville-Farmer-Dutchenry complex, 15 to 30 percent slopes	Farmland of statewide importance
138	Dougville-Norax-Nemire complex, 0 to 25 percent slopes	Farmland of statewide importance
141	Durixerolls-Ellisforde-Elvedere complex, 8 to 15 percent slopes	Farmland of statewide importance
142	Durixerolls-Ellisforde-Elvedere complex, 15 to 30 percent slopes	Farmland of statewide importance
150	Dutchenry ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
151	Ebadlow silt loam, 3 to 8 percent slopes	Farmland of statewide importance
152	Ebadlow-Spofford-Badgermont complex, 3 to 8 percent slopes	Farmland of statewide importance
153	Ebadlow-Spofford-Badgermont complex, 8 to 15 percent slopes	Farmland of statewide importance
154	Ellisforde fine sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
156	Ellisforde very fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
157	Ellisforde loam, 0 to 15 percent slopes	Farmland of unique importance
159	Ellisforde-Halaquepts complex, 0 to 3 percent slopes	Farmland of statewide importance
160	Ellisforde-Nespelem-Nemire complex, 0 to 8 percent slopes	Prime farmland if irrigated
161	Ellisforde-Nyssaton-DelRio complex, 15 to 30 percent slopes	Farmland of statewide importance
162	Elvedere silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
163	Elvedere silt loam, 3 to 8 percent slopes	Farmland of statewide importance
164	Elvedere-Leahy complex, 0 to 8 percent slopes	Prime farmland if irrigated
167	Ephrata fine sandy loam, 2 to 5 percent slopes	Prime farmland if irrigated
168	Esquatzel silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
169	Esquatzel silt loam, cemented substratum, 0 to 3 percent slopes	Prime farmland if irrigated
170	Esquatzel silt loam, channeled, 0 to 3 percent slopes	Farmland of statewide importance
171	Ewall loamy fine sand, 3 to 15 percent slopes	Farmland of statewide importance
172	Ewall-Alecanyon complex, 3 to 15 percent slopes	Farmland of statewide importance
173	Farmer ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
174	Farmer ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
175	Farmer ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
176	Farmer ashy fine sandy loam, cemented substratum, 3 to 8 percent slopes	Farmland of statewide importance
177	Farmer ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance
178	Farrell very fine sandy loam, 0 to 5 percent slopes	Prime farmland if irrigated
182	Ginnis fine sandy loam, 3 to 15 percent slopes	Farmland of statewide importance
183	Ginnis fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
189	Hanning silt loam, 3 to 8 percent slopes	Farmland of statewide importance

Table 5.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
190	Hanning-McCue-Badgermont complex, 3 to 8 percent slopes	Farmland of statewide importance
191	Hanning-McCue-Badgermont complex, 8 to 15 percent slopes	Farmland of statewide importance
192	Haploxerolls, nearly level to gently sloping	Prime farmland if irrigated
193	Haploxerolls, moderately well drained, nearly level to gently sloping	Prime farmland if irrigated
194	Haploxerolls-Aquolls-Halaquepts complex, nearly level to gently sloping	Prime farmland if irrigated and drained
201	Jordy ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
202	Jordy ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
203	Jordy ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
210	Kester ashy fine sandy loam, 0 to 5 percent slopes	Prime farmland if irrigated
216	Leidl-Stemilt complex, 3 to 15 percent slopes	Farmland of statewide importance
217	Leidl-Stemilt complex, 15 to 30 percent slopes	Farmland of statewide importance
223	Logy cobbly sandy loam, 15 to 30 percent slopes	Farmland of unique importance
225	Lorena silt loam, 3 to 15 percent slopes	Farmland of statewide importance
226	Lorena silt loam, 15 to 30 percent slopes	Farmland of statewide importance
227	Lorena-Broadax complex, 3 to 15 percent slopes	Farmland of statewide importance
229	Magallon fine sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
230	Magallon fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
231	Malaga gravelly fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
233	McCue-Broadax complex, 3 to 8 percent slopes	Farmland of statewide importance
234	McCue-Broadax complex, 8 to 15 percent slopes	Farmland of statewide importance
235	McCue-Broadax complex, 15 to 30 percent slopes	Farmland of statewide importance
236	McCue-Broadax-Mondovi complex, 0 to 8 percent slopes	Farmland of statewide importance
237	McCue-Broadax-Mondovi complex, 3 to 15 percent slopes	Farmland of statewide importance
238	Morrow silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
239	Morrow silt loam, 3 to 8 percent slopes	Farmland of statewide importance
240	Morrow silt loam, 8 to 15 percent slopes	Farmland of statewide importance
241	Morrow-Argabak complex, 3 to 8 percent slopes	Farmland of statewide importance
242	Morrow-Argabak complex, 8 to 15 percent slopes	Farmland of statewide importance
243	Morrow-Argabak-Badge complex, 15 to 30 percent slopes	Farmland of statewide importance
244	Nemire ashy fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
245	Nemire ashy fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
246	Nemire ashy fine sandy loam, sandy substratum, 0 to 3 percent slopes	Prime farmland if irrigated
247	Nespelem-Nemire complex, 0 to 8 percent slopes	Prime farmland if irrigated
248	Nespelem-Nemire complex, 8 to 15 percent slopes	Farmland of statewide importance
249	Norax silt loam, 8 to 15 percent slopes	Farmland of statewide importance
250	Norax-Dutchenry-Dougville complex, 3 to 8 percent slopes	Farmland of statewide importance
251	Norax-Dutchenry-Dougville complex, 8 to 15 percent slopes	Farmland of statewide importance
252	Norax-Dutchenry-Dougville complex, 15 to 30 percent slopes	Farmland of statewide importance
254	Peshastin fine sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
255	Peshastin fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
256	Peshastin fine sandy loam, 15 to 30 percent slopes	Farmland of unique importance
257	Peshastin fine sandy loam, compacted substratum, 3 to 8 percent slopes	Prime farmland if irrigated
258	Peshastin fine sandy loam, compacted substratum, 8 to 15 percent slopes	Farmland of unique importance
259	Peshastin stony fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
261	Pogue fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
262	Pogue fine sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
263	Pogue fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
264	Pogue gravelly fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
265	Pogue gravelly fine sandy loam, 15 to 25 percent slopes	Farmland of unique importance
266	Pogue cobbly fine sandy loam, 0 to 15 percent slopes	Farmland of unique importance
268	Pogue extremely stony fine sandy loam, 3 to 25 percent slopes	Farmland of unique importance
269	Pogue bouldery fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
270	Pogue loam, 8 to 15 percent slopes	Farmland of unique importance
272	Quincy fine sand, 15 to 30 percent slopes	Farmland of unique importance
276	Quincy-Ellisforde-Cashmere complex, 3 to 15 percent slopes	Farmland of unique importance
278	Quincy-Sanbee-DelRio complex, 0 to 20 percent slopes	Farmland of statewide importance
279	Ralls silt loam, 3 to 25 percent slopes	Farmland of statewide importance
281	Renshigh-Alstown-Renslow complex, 3 to 15 percent slopes	Farmland of statewide importance
282	Renshigh-Alstown-Renslow complex, 15 to 30 percent slopes	Farmland of statewide importance
283	Renslow silt loam, 0 to 8 percent slopes	Prime farmland if irrigated
284	Renslow silt loam, 8 to 15 percent slopes	Farmland of statewide importance
285	Renslow silt loam, 15 to 30 percent north slopes	Farmland of statewide importance
286	Renslow silt loam, 15 to 30 percent south slopes	Farmland of statewide importance
287	Renslow silt loam, cemented substratum, 0 to 8 percent slopes	Prime farmland if irrigated
288	Renslow silt loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance

Table 5.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
289	Renslow silt loam, cemented substratum, 15 to 30 percent slopes	Farmland of statewide importance
290	Renslow-Achelake-Willis complex, 8 to 15 percent slopes	Farmland of statewide importance
291	Renslow-Achelake-Willis complex, 15 to 30 percent slopes	Farmland of statewide importance
292	Renslow-Alstown-Kester complex, 3 to 8 percent slopes	Farmland of statewide importance
293	Renslow-Alstown-Kester complex, 8 to 15 percent slopes	Farmland of statewide importance
294	Renslow-Alstown-Kester complex, 15 to 30 percent slopes	Farmland of statewide importance
295	Ritzville silt loam, 3 to 8 percent slopes	Farmland of statewide importance
296	Ritzville silt loam, 15 to 30 percent north slopes	Farmland of statewide importance
297	Ritzville silt loam, cemented substratum, 0 to 8 percent slopes	Prime farmland if irrigated
298	Ritzville silt loam, cemented substratum, 8 to 15 percent slopes	Farmland of statewide importance
299	Ritzville silt loam, cemented substratum, 15 to 30 percent slopes	Farmland of statewide importance
305	Royal loamy fine sand, 0 to 10 percent slopes	Prime farmland if irrigated
308	Sagehill very fine sandy loam, 10 to 15 percent slopes	Farmland of unique importance
309	Sanbee loamy fine sand, 0 to 15 percent slopes	Prime farmland if irrigated
310	Sanbee ashy sandy loam, 0 to 8 percent slopes	Farmland of statewide importance
311	Sanbee ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
312	Sanbee-Quincy complex, 0 to 3 percent slopes	Farmland of statewide importance
314	Selah silt loam, 0 to 8 percent slopes	Prime farmland if irrigated
315	Sevar ashy fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
318	Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes	Prime farmland if irrigated
319	Silico-Sevar-Dutchenry complex, 8 to 15 percent slopes	Farmland of statewide importance
320	Silico-Sevar-Dutchenry complex, 15 to 30 percent slopes	Farmland of statewide importance
321	Simsfield ashy fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
322	Simsfield ashy fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
323	Simsfield ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
324	Simsfield-Ellisforde-DelRio complex, 0 to 15 percent slopes	Farmland of statewide importance
325	Simsfield-Zeemal complex, 0 to 8 percent slopes	Farmland of statewide importance
326	Simsfield-Zeemal complex, 8 to 30 percent slopes	Farmland of statewide importance
327	Siweeka complex, 0 to 8 percent slopes	Prime farmland if irrigated
328	Siweeka complex, 8 to 15 percent slopes	Farmland of statewide importance
329	Siweeka complex, 15 to 30 percent slopes	Farmland of statewide importance
330	Siweeka-Argabak complex, 0 to 15 percent slopes	Farmland of statewide importance
333	Siweeka-Brazlan complex, 0 to 8 percent slopes	Prime farmland if irrigated
334	Siweeka-Brazlan complex, 8 to 15 percent slopes	Farmland of statewide importance
335	Siweeka-Brazlan complex, 15 to 30 percent slopes	Farmland of statewide importance
339	Siweeka-Stubblefield-Timentwa complex, 0 to 15 percent slopes	Farmland of statewide importance
340	Siweeka-Timentwa-Dezellem complex, 0 to 15 percent slopes	Farmland of statewide importance
341	Siweeka-Timentwa-Stubblefield complex, 15 to 40 percent slopes	Farmland of statewide importance
346	Skaha-Tubspring complex, 0 to 8 percent slopes	Prime farmland if irrigated
347	Slickear ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
348	Slickear ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
349	Slusser ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
350	Slusser ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
351	Slusser ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes	Prime farmland if irrigated
352	Slusser ashy fine sandy loam, cemented substratum, 8 to 30 percent slopes	Farmland of statewide importance
353	Slusser ashy fine sandy loam, indurated substratum, 3 to 8 percent slopes	Farmland of statewide importance
354	Slusser-Alsash-Nemire complex, 3 to 8 percent slopes	Farmland of statewide importance
355	Slusser-Alsash-Nemire complex, 8 to 15 percent slopes	Farmland of statewide importance
358	Sprauer ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
359	Sprauer ashy fine sandy loam, 8 to 30 percent slopes	Farmland of statewide importance
360	St. Andrews ashy loam, 0 to 3 percent slopes	Prime farmland if irrigated
361	St. Andrews ashy loam, 3 to 8 percent slopes	Farmland of statewide importance
367	Strat cobbly loam, 0 to 15 percent slopes	Farmland of statewide importance
369	Strat silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
371	Strat-Tubspring complex, 0 to 8 percent slopes	Prime farmland if irrigated
372	Strat-Tubspring complex, 8 to 30 percent slopes	Farmland of statewide importance
373	Strat-Tubspring-DelRio complex, 0 to 30 percent slopes	Farmland of statewide importance
374	Strat-Tubspring-Nemire complex, 0 to 30 percent slopes	Farmland of statewide importance
376	Stratford silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
377	Stratford silt loam, 3 to 8 percent slopes	Farmland of statewide importance
378	Stratford silt loam, 8 to 15 percent slopes	Farmland of statewide importance
380	Supplee ashy very fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
381	Supplee ashy very fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance

Table 5.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
382	Tagear ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
383	Tagear ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
384	Tagear ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
393	Timentwa ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
394	Timentwa ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
395	Timentwa ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
396	Timentwa-Lickskillet-Argabak complex, 0 to 15 percent slopes	Farmland of statewide importance
398	Timentwa-Siweeka complex, 3 to 8 percent slopes	Farmland of statewide importance
399	Timentwa-Siweeka complex, 8 to 15 percent slopes	Farmland of statewide importance
400	Timentwa-Siweeka complex, 15 to 30 percent slopes	Farmland of statewide importance
401	Timentwa-Siweeka-Brazlan complex, 0 to 15 percent slopes	Farmland of statewide importance
403	Timmerman coarse sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated
404	Timmerman coarse sandy loam, 3 to 8 percent slopes	Prime farmland if irrigated
405	Timmerman coarse sandy loam, 8 to 15 percent slopes	Farmland of unique importance
406	Titchenal silt loam, 3 to 8 percent slopes	Farmland of statewide importance
407	Titchenal silt loam, 8 to 15 percent slopes	Farmland of statewide importance
408	Toler ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
409	Toler ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
410	Toler ashy fine sandy loam, 15 to 30 percent slopes	Farmland of statewide importance
411	Toler ashy silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
412	Toler ashy silt loam, 3 to 8 percent slopes	Farmland of statewide importance
413	Toler ashy silt loam, 8 to 15 percent slopes	Farmland of statewide importance
414	Toler ashy silt loam, 15 to 30 percent slopes	Farmland of statewide importance
416	Toler-Corbaley complex, 3 to 8 percent slopes	Farmland of statewide importance
419	Toler-Horseflat complex, 0 to 3 percent slopes	Farmland of statewide importance
420	Toler-Horseflat complex, 3 to 8 percent slopes	Farmland of statewide importance
423	Toler-Horseflat-Benwy complex, 3 to 8 percent slopes	Farmland of statewide importance
424	Toler-Horseflat-Ralls complex, 8 to 15 percent slopes	Farmland of statewide importance
428	Touhey complex, 0 to 8 percent slopes	Prime farmland if irrigated
429	Touhey complex, 8 to 15 percent slopes	Farmland of statewide importance
430	Touhey complex, 15 to 30 percent slopes	Farmland of statewide importance
431	Touhey ashy fine sandy loam, low elevation, 3 to 8 percent slopes	Prime farmland if irrigated
432	Touhey ashy fine sandy loam, low elevation, 8 to 15 percent slopes	Farmland of unique importance
433	Touhey ashy fine sandy loam, low elevation, 15 to 30 percent slopes	Farmland of unique importance
443	Tubspring ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
444	Tubspring ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
446	Tubspring-DelRio-Strat complex, 0 to 8 percent slopes	Prime farmland if irrigated
447	Van Nostern silt loam, 3 to 8 percent slopes	Farmland of statewide importance
448	Van Nostern silt loam, 8 to 15 percent slopes	Farmland of statewide importance
449	Van Nostern silt loam, 15 to 30 percent slopes	Farmland of statewide importance
451	Van Nostern-Camaspatch complex, 3 to 8 percent slopes	Farmland of statewide importance
452	Van Nostern-Camaspatch complex, 8 to 15 percent slopes	Farmland of statewide importance
453	Van Nostern-Camaspatch complex, 15 to 30 percent slopes	Farmland of statewide importance
455	Warden very fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
459	Waterflat ashy fine sandy loam, 0 to 3 percent slopes	Prime farmland if drained
460	Wellsdam ashy fine sandy loam, 3 to 8 percent slopes	Farmland of statewide importance
461	Wellsdam ashy fine sandy loam, 8 to 15 percent slopes	Farmland of unique importance
462	Wellsdam ashy fine sandy loam, 15 to 30 percent slopes	Farmland of unique importance
466	Wellsdam-Peshastin complex, 3 to 8 percent slopes	Farmland of statewide importance
467	Wellsdam-Peshastin complex, 8 to 15 percent slopes	Farmland of unique importance
468	Wellsdam-Peshastin complex, 15 to 30 percent slopes	Farmland of unique importance
470	Willis silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
471	Willis silt loam, 3 to 8 percent slopes	Farmland of statewide importance
472	Willis silt loam, 8 to 15 percent slopes	Farmland of statewide importance
473	Willock ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
474	Willock ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
475	Willock complex, 8 to 15 percent slopes	Farmland of statewide importance
476	Willock complex, 15 to 30 percent slopes	Farmland of statewide importance
478	Willock-Conconully complex, 3 to 8 percent slopes	Prime farmland if irrigated
479	Willock-Conconully complex, 8 to 15 percent slopes	Farmland of statewide importance
480	Willock-Conconully complex, 15 to 30 percent slopes	Farmland of statewide importance
481	Willock-Watco complex, 15 to 30 percent slopes	Farmland of statewide importance
483	Winblow ashy fine sandy loam, 0 to 8 percent slopes	Prime farmland if irrigated
484	Winblow ashy fine sandy loam, 8 to 15 percent slopes	Farmland of statewide importance
489	Zen silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
490	Zen silt loam, 3 to 8 percent slopes	Farmland of statewide importance
491	Zen silt loam, 8 to 15 percent slopes	Farmland of statewide importance
492	Zen silt loam, 15 to 30 percent slopes	Farmland of statewide importance
494	Zen-Horseflat complex, 3 to 8 percent slopes	Farmland of statewide importance

Table 5.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
496	Zen-Horseflat-Benwy complex, 3 to 8 percent slopes	Farmland of statewide importance
497	Zen-Horseflat-Ralls complex, 8 to 15 percent slopes	Farmland of statewide importance

Table 6.--Engineering Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1:												
Aarup----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy very fine sandy loam, ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
2:												
Aarup----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy very fine sandy loam, ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
3:												
Aarup----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
3:												
Aarup, eroded---	0-6	Ashy fine sandy loam	SM	A-2, A-4	0	0-5	80-85	75-80	50-70	30-45	15-30	NP-5
	6-20	Cemented material			---	---	---	---	---	---	---	---
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---
4:												
Achelake--------	0-5	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	5-20	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5
	20-60	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5
5:												
Aeneas----------	0-10	Fine sandy loam	SM	A-4	0	0	95-100	90-100	60-85	35-50	15-25	NP-5
	10-24	Fine sandy loam, sandy loam	SM	A-4	0	0	90-100	85-100	60-85	35-50	15-25	NP-5
	24-30	Loamy fine sand, loamy sand	SM	A-1, A-2, A-4	0	0	90-100	85-100	40-75	15-25	0-15	NP
	30-60	Sand, coarse sand	SM, SP-SM	A-3	0	0-5	90-100	85-100	40-70	5-15	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
6:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
7:												
Alecanyon-------	0-9	Very cobbly ashy loamy sand	SM, GM, GP-GM	A-1	0-5	20-30	50-75	45-70	20-40	5-20	15-25	NP-5
	9-12	Very cobbly ashy fine sandy loam	GM, SM	A-1	0-5	20-30	50-75	45-70	30-45	15-25	15-30	NP-5
	12-20	Very gravelly loamy coarse sand, very cobbly loamy coarse sand	GP-GM, SM, SP-SM	A-1	0-5	20-35	50-60	40-60	20-35	5-15	---	NP
	20-60	Extremely gravelly coarse sand, very cobbly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	20-35	35-60	30-50	15-30	0-10	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
8:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	GM, SM, SP-SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
9:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	GM, SM, SP-SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
10:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	SP-SM, GM, SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
10:												
Nemire----------	0-24	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	24-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
11:												
Alsash----------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	7-11	Ashy fine sandy loam, ashy very fine sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	65-85	20-30	NP-10
	28-60	Gravelly fine sandy loam, very gravelly fine sandy loam, gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0	40-70	35-65	30-60	20-50	15-20	NP-5
12:												
Alsash----------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	7-11	Ashy fine sandy loam, ashy very fine sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	65-85	20-30	NP-10
	28-60	Gravelly fine sandy loam, very gravelly fine sandy loam, gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0	40-70	35-65	30-60	20-50	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
12:												
Slusser, indurated substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	6-11	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	28-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	65-90	20-30	NP-10
	41-45	Cemented material			---	---	---	---	---	---	---	---
	45-50	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---
13:												
Alsash----------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	7-11	Ashy fine sandy loam, ashy very fine sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	65-85	20-30	NP-10
	28-60	Gravelly fine sandy loam, very gravelly fine sandy loam, gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0	40-70	35-65	30-60	20-50	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
13:												
Slusser, indurated substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	6-11	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	28-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	65-90	20-30	NP-10
	41-45	Cemented material			---	---	---	---	---	---	---	---
	45-50	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---
14:												
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
15:												
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
16:												
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
16:												
Cheviot---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	20-30	65-70	45-60	40-55	30-40	20-30	NP-10
	10-32	Very cobbly silt loam, very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	20-40	50-70	45-60	40-55	30-40	20-30	NP-10
	32-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	45-60	50-70	45-65	35-65	25-50	20-30	NP-10
17:												
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-18	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	18-49	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	49-60	Cemented material			---	---	---	---	---	---	---	---
18:												
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-18	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	18-49	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	49-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
19:												
Aquolls---------	0-28	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	80-100	65-90	20-25	NP-5
	28-37	Silt loam, very fine sandy loam, fine sandy loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	85-100	50-90	20-30	NP-10
	37-49	Silt loam, fine sandy loam, very cobbly loam	CL-ML, ML, SM	A-4	0-5	40-50	75-100	65-100	60-100	40-90	20-30	NP-10
	49-60	Clay loam, silt loam, very cobbly loam	CL, CL-ML, ML	A-4	0-5	40-50	75-100	65-100	65-100	50-90	20-45	5-15
20:												
Aquolls---------	0-28	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	80-100	65-90	20-25	NP-5
	28-37	Silt loam, very fine sandy loam, fine sandy loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	85-100	50-90	20-30	NP-10
	37-49	Silt loam, fine sandy loam, very cobbly loam	CL-ML, ML, SM	A-4	0-5	40-50	75-100	65-100	60-100	40-90	20-30	NP-10
	49-60	Clay loam, silt loam, very cobbly loam	CL, CL-ML, ML	A-4	0-5	40-50	75-100	65-100	65-100	50-90	20-45	5-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
20:												
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented fine sandy loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5
21:												
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
22:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
22:												
Badge----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15
23:												
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Extremely gravelly clay, very gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
23:												
Badge----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15
24:												
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
Haploxerolls, wet----------	0-16	Fine sandy loam	ML, SM	A-4	0	0-3	85-100	80-100	60-90	45-70	15-30	NP-5
	16-25	Very fine sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-1, A-2, A-4	0	0-10	80-95	70-90	40-80	15-70	15-30	NP-10
	25-41	Ashy loamy sand, ashy fine sandy loam, very gravelly ashy sand	GM, GC-GM, ML, SM	A-1, A-2, A-3, A-4	0	0-15	30-95	25-90	15-75	5-55	0-30	NP-10
	41-60	Ashy sandy loam, very gravelly ashy sandy loam, ashy fine sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	0-10	40-95	35-90	25-80	15-65	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
24:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
25:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
25:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
26:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
26:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
27:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
27:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
28:												
Argabak----------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
29:												
Argabak----------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
29:												
Nemire, moist---	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	10-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
Siweeka, bedrock substratum-----	0-13	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	13-27	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	27-39	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	39-43	Cemented material			---	---	---	---	---	---	---	---
	43-47	Unweathered bedrock			---	---	---	---	---	---	---	---
30:												
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
31:												
Argabak---	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Tagear, bedrock substratum---	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	95-100	75-95	50-70	15-30	NP-5
	7-19	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	50-65	15-30	NP-5
	19-31	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-5	95-100	85-95	75-90	45-65	15-30	NP-5
	31-44	Fine sandy loam, sandy loam	ML, SM	A-4	0	0-5	90-95	80-90	75-90	45-65	15-25	NP-5
	44-58	Cemented loamy sand	ML, SM	A-4	0	0-5	90-95	80-90	75-90	45-65	5-20	NP-5
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop---	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
32:												
Argabak---	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
32:												
Timentwa, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	6-22	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	22-37	Gravelly fine sandy loam, gravelly loam, sandy loam	GM, ML, SM	A-2, A-4	0-5	5-15	70-95	60-90	40-70	25-55	15-25	NP-5
	37-50	Gravelly fine sandy loam, gravelly loam	GM, SM	A-2, A-4	0-5	5-15	70-90	60-85	40-70	25-50	15-25	NP-5
	50-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
33:												
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
33:												
Timentwa, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	6-24	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	24-50	Gravelly fine sandy loam, gravelly loam, sandy loam	GM, ML, SM	A-4, A-2	0-5	5-15	70-95	60-90	40-70	25-55	15-25	NP-5
	50-52	Cemented sandy loam	GM, SM	A-2, A-4, A-1	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
34:												
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---
Winblow---------	0-6	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	6-10	Ashy fine sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	45-65	15-30	NP-5
	10-39	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-65	15-30	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
35:												
Badge----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15
36:												
Badge----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
37:												
Badge----------	0-9	Cobbly loam	ML	A-4	0-5	10-30	70-85	70-80	60-75	55-70	25-35	NP-5
	9-16	Cobbly silt loam, cobbly loam, very cobbly loam	GM, ML	A-2, A-4	0-5	20-45	55-70	50-70	45-60	30-55	25-35	NP-5
	16-33	Very cobbly loam, extremely cobbly loam, very gravelly clay loam	GC	A-2	0-25	0-50	40-60	20-55	15-35	10-30	30-45	10-20
	33-60	Very cobbly silt loam, extremely gravelly silt loam, very gravelly loam	GM	A-1, A-2, A-4	0-5	15-50	50-60	20-55	15-40	10-40	25-35	NP-5
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
38:												
Badge----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15
Dougville, cemented substratum-----	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	12-22	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	22-38	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	38-46	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	46-60	Cemented gravelly silt loam	GM, ML, SM	A-4, A-1, A-2	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
39:												
Badge----------	0-6	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	6-24	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	24-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15
Stemilt---------	0-10	Stony ashy loam	CL-ML, ML, SC-SM, SM	A-4	5-10	0-5	75-85	70-80	60-75	40-60	20-35	NP-10
	10-20	Cobbly ashy loam, very cobbly ashy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-10	20-30	80-90	70-80	65-80	45-65	25-35	5-15
	20-38	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
	38-60	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
40:												
Badge----------	0-6	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	6-24	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	24-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
40:												
Stemilt---------	0-10	Stony ashy loam	CL-ML, ML, SC-SM, SM	A-4	5-10	0-5	75-85	70-80	60-75	40-60	20-35	NP-10
	10-20	Cobbly ashy loam, very cobbly ashy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-10	20-30	80-90	70-80	65-80	45-65	25-35	5-15
	20-38	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
	38-60	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
41:												
Bagdad----------	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-14	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	14-24	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	24-40	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	40-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
42:												
Bagdad----------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-13	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	13-42	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	42-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
43:												
Bagdad----------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-13	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	13-42	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	42-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
44:												
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
45:												
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Lickskillet-----	0-4	Very cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	20-50	50-75	45-70	40-65	30-50	25-30	5-10
	4-15	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC, GM	A-2, A-6, A-7	0-10	5-50	40-65	30-50	25-50	20-40	35-45	10-20
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Zen-------------	0-13	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	13-24	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	24-28	Silt loam, clay loam, gravelly loam	CL, SC, SC-SM	A-4, A-6	0	0-10	70-100	65-95	55-85	40-75	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
46:												
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Roloff----------	0-11	Silt loam	ML	A-4	0	0-5	95-100	90-95	80-90	70-80	20-30	NP-5
	11-17	Silt loam, very fine sandy loam	ML	A-4	0	0-10	80-90	75-85	60-70	50-60	20-30	NP-5
	17-29	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0-10	70-90	60-85	55-70	50-60	20-30	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
47:												
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
47:												
Touhey----------	0-15	Ashy very fine sandy loam	ML	A-4	0	0-5	95-100	85-95	85-95	60-80	15-30	NP-5
	15-27	Gravelly fine sandy loam, gravelly sandy loam, gravelly very fine sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-70	15-50	15-30	NP-5
	27-38	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-25	NP-5
	38-40	Cemented gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, gravelly fine sandy loam	SM, GM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5
48:												
Beca------------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-23	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	20-30	NP-5
	23-31	Silt loam, loam	ML, CL-ML	A-4	0	0-10	80-100	75-100	70-95	55-85	20-30	NP-10
	31-38	Gravelly silt loam, gravelly loam, cobbly silt loam	GC-GM, CL-ML, SC-SM	A-4	0	10-40	60-90	55-85	50-80	36-65	20-30	5-10
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
49:												
Beca----------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-23	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	20-30	NP-5
	23-31	Silt loam, loam	CL-ML, ML	A-4	0	0-10	80-100	75-100	70-95	55-85	20-30	NP-10
	31-38	Gravelly silt loam, gravelly loam, cobbly silt loam	CL-ML, GC-GM, SC-SM	A-4	0	10-40	60-90	55-85	50-80	36-65	20-30	5-10
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
50:												
Beca----------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-23	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	20-30	NP-5
	23-31	Silt loam, loam	ML, CL-ML	A-4	0	0-10	80-100	75-100	70-95	55-85	20-30	NP-10
	31-38	Gravelly silt loam, gravelly loam, cobbly silt loam	CL-ML, GC-GM, SC-SM	A-4	0	10-40	60-90	55-85	50-80	36-65	20-30	5-10
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
51:												
Beca----------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-23	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	20-30	NP-5
	23-31	Silt loam, loam	ML, CL-ML	A-4	0	0-10	80-100	75-100	70-95	55-85	20-30	NP-10
	31-38	Gravelly silt loam, gravelly loam, cobbly silt loam	GC-GM, CL-ML, SC-SM	A-4	0	10-40	60-90	55-85	50-80	36-65	20-30	5-10
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
51:												
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
52:												
Beca------------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-23	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	20-30	NP-5
	23-31	Silt loam, loam	ML, CL-ML	A-4	0	0-10	80-100	75-100	70-95	55-85	20-30	NP-10
	31-38	Gravelly silt loam, gravelly loam, cobbly silt loam	GC-GM, SC-SM, CL-ML	A-4	0	10-40	60-90	55-85	50-80	36-65	20-30	5-10
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
Dougville, cemented substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-95	55-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-95	55-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	85-100	75-90	50-75	15-30	NP-5
	36-58	Silt loam	CL-ML	A-4	0	0	75-85	65-75	55-65	50-60	25-30	5-10
	58-60	Cemented gravelly silt loam	CL, CL-ML, SC	A-2, A-6, A-4	0	0	95-100	90-100	30-95	20-90	25-40	5-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
52:												
Slickear--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	10-22	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	22-46	Silty clay loam, silt loam	ML, CL-ML	A-4	0	0	100	95-100	90-100	70-95	30-40	5-15
	46-50	Cemented material			---	---	---	---	---	---	---	---
	50-55	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
53:												
Benwy-----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
54:												
Benwy-----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
55:												
Benwy----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
56:												
Benwy----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
57:												
Benwy----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Selah----------	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	16-23	Clay loam, silty clay loam, silt loam	CL	A-6	0	0-10	95-100	85-95	75-90	55-85	35-45	10-20
	23-31	Gravelly loam, gravelly silt loam, silt loam	CL-ML, ML, SC, GC-GM	A-6, A-4	0	0-25	60-90	55-85	45-75	35-65	15-35	NP-15
	31-35	Cemented material			---	---	---	---	---	---	---	---
	35-40	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
58:												
Benwy----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Selah----------	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	16-23	Clay loam, silty clay loam, silt loam	CL	A-6	0	0-10	95-100	85-95	75-90	55-85	35-45	10-20
	23-31	Gravelly loam, gravelly silt loam, silt loam	CL-ML, ML, SC, GC-GM	A-6, A-4	0	0-25	60-90	55-85	45-75	35-65	15-35	NP-15
	31-35	Cemented material			---	---	---	---	---	---	---	---
	35-40	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
59:												
Benwy----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Selah----------	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	16-23	Clay loam, silty clay loam, silt loam	CL	A-6	0	0-10	95-100	85-95	75-90	55-85	35-45	10-20
	23-31	Gravelly loam, gravelly silt loam, silt loam	CL-ML, ML, SC, GC-GM	A-6, A-4	0	0-25	60-90	55-85	45-75	35-65	15-35	NP-15
	31-35	Cemented material			---	---	---	---	---	---	---	---
	35-40	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
60:												
Beverly---	0-5	Cobbly fine sandy loam	SM	A-4	0	20-30	85-95	80-90	70-85	35-50	15-20	NP-5
	5-20	Gravelly fine sandy loam, very gravelly sandy loam, gravelly loamy sand	GM, GP-GM, SM	A-1, A-2	0	0-20	40-80	30-70	25-60	10-35	15-20	NP-5
	20-60	Extremely gravelly sand, extremely gravelly loamy coarse sand, extremely gravelly loamy sand	GP, GP-GM	A-1	0	5-30	20-35	10-25	5-20	0-5	0-15	NP-5
61:												
Brays---	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	10-27	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	27-35	Extremely cobbly ashy fine sandy loam, very cobbly ashy fine sandy loam	GM, GP-GM	A-1	0-5	40-60	40-50	30-45	20-40	10-25	15-30	NP-5
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
62:												
Brays---	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	10-27	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	27-35	Extremely cobbly ashy fine sandy loam, very cobbly ashy fine sandy loam	GM, GP-GM	A-1	0-5	40-60	40-50	30-45	20-40	10-25	15-30	NP-5
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
62:												
Entiat----------	0-6	Gravelly fine sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	40-60	20-35	15-25	NP-5
	6-11	Very gravelly loam, very gravelly sandy loam, very gravelly fine sandy loam	SM	A-1, A-2	0	0-15	70-80	30-50	25-40	10-35	20-30	NP-5
	11-17	Very gravelly sandy loam, very gravelly loam, very gravelly fine sandy loam	SM	A-1	0	0-15	60-70	25-40	15-35	10-25	20-30	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
63:												
Brays----------	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	10-27	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	75-90	55-70	15-30	NP-5
	27-35	Extremely cobbly ashy fine sandy loam, very cobbly ashy fine sandy loam	GM, GP-GM	A-1	0-5	40-60	40-50	30-45	20-40	10-25	15-30	NP-5
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
63:												
Entiat----------	0-6	Gravelly fine sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	40-60	20-35	15-25	NP-5
	6-11	Very gravelly loam, very gravelly sandy loam, very gravelly fine sandy loam	SM	A-1, A-2	0	0-15	70-80	30-50	25-40	10-35	20-30	NP-5
	11-17	Very gravelly sandy loam, very gravelly loam, very gravelly fine sandy loam	SM	A-1	0	0-15	60-70	25-40	15-35	10-25	20-30	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
64:												
Broadax---------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-16	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	16-26	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	26-42	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	42-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-40	5-20
65:												
Broadax---------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-16	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	16-26	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	26-42	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	42-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-40	5-20

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
66:												
Broadax---------	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
67:												
Broadax---------	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
68:												
Broadax, bedrock substratum-----	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	9-13	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	13-31	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-90	25-35	5-15
	31-47	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	80-100	75-100	70-100	60-90	20-30	NP-10
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Spofford--------	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100	85-95	20-25	5-10
	9-21	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-95	30-40	10-20
	21-44	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	44-53	Cemented material			---	---	---	---	---	---	---	---
	53-58	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	58-62	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
69:												
Broadax, bedrock substratum-----	0-9	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	9-13	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	13-31	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	70-90	25-35	5-15
	31-47	Silt loam, loam, very fine sandy loam	CL-ML, ML	A-4	0	0	80-100	75-100	70-100	60-90	20-30	NP-10
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Spofford--------	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100	85-95	20-25	5-10
	9-21	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-95	30-40	10-20
	21-44	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	44-53	Cemented material			---	---	---	---	---	---	---	---
	53-58	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	58-62	Unweathered bedrock			---	---	---	---	---	---	---	---
70:												
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
Titchenal-------	0-10	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	10-20	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	20-57	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	57-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
71:												
Burbank---------	0-6	Loamy fine sand	SM	A-2	0	0-5	95-100	85-95	60-80	15-35	0-15	NP-5
	6-20	Loamy fine sand, gravelly loamy sand	SM	A-2	0	0-5	85-95	70-90	60-80	15-35	0-15	NP-5
	20-60	Extremely gravelly sand, very cobbly coarse sand	GM, GP, GW-GM	A-1	0-5	15-50	35-55	10-50	5-30	0-20	0-14	NP
72:												
Burbank---------	0-6	Loamy fine sand	SM	A-2	0	0-5	95-100	85-95	60-80	15-35	0-15	NP-5
	6-20	Loamy fine sand, gravelly loamy sand	SM	A-2	0	0-5	85-95	70-90	60-80	15-35	0-15	NP-5
	20-60	Extremely gravelly sand, very cobbly coarse sand	GM, GP, GW-GM	A-1	0-5	15-50	35-55	10-50	5-30	0-20	0-14	NP
73:												
Burch-----------	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	20-25	NP-5
	10-38	Loam, very fine sandy loam, silt loam	CL-ML, ML, SM	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10
	38-60	Loam, very fine sandy loam, silt loam	CL-ML, ML, SM	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10
74:												
Burch-----------	0-10	Loam	ML	A-4	0	0	100	90-100	75-85	60-75	20-25	NP-5
	10-30	Loam, very fine sandy loam, silt loam	ML, SM, CL-ML	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10
	30-60	Loam, very fine sandy loam, silt loam	CL-ML, ML, SM	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10
75:												
Burch-----------	0-10	Loam	ML	A-4	0	0	100	90-100	75-85	60-75	20-25	NP-5
	10-30	Loam, very fine sandy loam, silt loam	CL-ML, ML, SM	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10
	30-60	Loam, very fine sandy loam, silt loam	CL-ML, ML, SM	A-4	0	0	95-100	90-100	80-90	40-75	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
76:												
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	GM, SM, SP-SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5
77:												
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	GM, SM, SP-SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
77:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
Haploxerolls, wet------------	0-16	Fine sandy loam	ML, SM	A-4	0	0-3	85-100	80-100	60-90	45-70	15-30	NP-5
	16-25	Very fine sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-1, A-2, A-4	0	0-10	80-95	70-90	40-80	15-70	15-30	NP-10
	25-41	Ashy loamy sand, ashy fine sandy loam, very gravelly ashy sand	GM, GC-GM, ML, SM	A-1, A-2, A-3, A-4	0	0-15	30-95	25-90	15-75	5-55	0-30	NP-10
	41-60	Ashy sandy loam, very gravelly ashy sandy loam, ashy fine sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	0-10	40-95	35-90	25-80	15-65	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
78:												
Cachebutte------	0-6	Ashy sandy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-80	30-60	15-30	NP-5
	6-22	Ashy sandy loam, ashy loam	ML, SM	A-2, A-4	0	0	95-100	90-100	60-90	30-70	15-30	NP-5
	22-28	Gravelly ashy sandy loam, ashy sandy loam	GM, ML, SM	A-2, A-4	0	0-10	65-90	60-85	45-75	25-60	15-30	NP-5
	28-34	Very cobbly sandy loam, very gravelly fine sandy loam	GM, SM, SP-SM	A-1, A-2	0-5	30-45	40-70	35-65	20-50	10-30	0-15	NP-5
	34-60	Extremely cobbly coarse sand, very gravelly loamy sand, very gravelly sand	GM, GP-GM	A-1	0-5	30-55	40-65	35-60	10-30	5-20	0-15	NP-5
Nemire----------	0-24	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	24-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
78:												
Alecanyon-------	0-12	Very cobbly ashy fine sandy loam	GM, SM	A-2, A-4	0-5	20-30	50-75	45-70	40-70	25-50	15-30	NP-5
	12-31	Extremely cobbly loamy coarse sand, extremely gravelly loamy coarse sand, very cobbly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	0-5	25-35	35-60	30-50	15-30	10-20	---	NP
	31-60	Extremely gravelly coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	SP-SM, GP, GP-GM, GW	A-1	0-5	25-35	35-60	30-50	15-30	0-10	---	NP
79:												
Cashmere--------	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	65-90	30-45	15-20	NP-5
	11-24	Fine sandy loam, coarse sandy loam, sandy loam	SM	A-2, A-4	0	0-5	90-100	90-100	50-85	25-40	15-25	NP-5
	24-60	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	60-85	30-45	15-20	NP-5
80:												
Cashmere--------	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	65-90	30-45	15-20	NP-5
	11-24	Fine sandy loam, coarse sandy loam, sandy loam	SM	A-2, A-4	0	0-5	90-100	90-100	50-85	25-40	15-25	NP-5
	24-60	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	60-85	30-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
81:												
Cashmere--------	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	65-90	30-45	15-20	NP-5
	11-24	Fine sandy loam, coarse sandy loam, sandy loam	SM	A-2, A-4	0	0-5	90-100	90-100	50-85	25-40	15-25	NP-5
	24-60	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	60-85	30-45	15-20	NP-5
82:												
Cashmere--------	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	15-20	NP-5
	10-44	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	44-52	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	52-60	Cemented very fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
83:												
Cashmere--------	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	15-20	NP-5
	10-44	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	44-52	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	52-60	Cemented very fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
84:												
Cashmere--------	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	15-20	NP-5
	10-44	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	44-52	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	52-60	Cemented very fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
85:												
Cashmere, cemented substratum-----	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	15-20	NP-5
	10-44	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	44-52	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	52-60	Cemented very fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
86:												
Cashmere, cemented substratum-----	0-10	Fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	35-55	15-20	NP-5
	10-44	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	44-52	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5
	52-60	Cemented very fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-95	35-65	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
86:												
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
87:												
Cashmont--------	0-10	Gravelly sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	30-45	20-35	15-25	NP-5
	10-36	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-55	20-40	15-25	NP-5
	36-60	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	50-80	45-75	25-55	15-40	15-25	NP-5
88:												
Cashmont--------	0-10	Gravelly sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	30-45	20-35	15-25	NP-5
	10-36	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-55	20-40	15-25	NP-5
	36-60	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	50-80	45-75	25-55	15-40	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
89:												
Cashmont--------	0-10	Sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-90	60-75	30-55	15-25	NP-5
	10-24	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-55	20-40	15-25	NP-5
	24-60	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	50-80	45-75	25-55	15-40	15-25	NP-5
90:												
Cashmont--------	0-10	Sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-90	60-75	30-55	15-25	NP-5
	10-24	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-55	20-40	15-25	NP-5
	24-60	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	50-80	45-75	25-55	15-40	15-25	NP-5
91:												
Cashmont--------	0-10	Sandy loam	ML, SM	A-2, A-4	0	0	85-100	75-90	60-75	30-55	15-25	NP-5
	10-24	Gravelly sandy loam, gravelly fine sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	60-80	55-75	35-55	20-40	15-25	NP-5
	24-60	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	50-80	45-75	25-55	15-40	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
92:												
Chelan, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	70-85	50-65	15-30	NP-5
	10-42	Ashy fine sandy loam, ashy very fine sandy loam	ML	A-4	0-5	0-5	95-100	80-90	70-90	50-70	15-30	NP-5
	42-46	Cemented very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	46-60	Cobbly fine sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
93:												
Chelan, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	70-85	50-65	15-30	NP-5
	10-42	Ashy fine sandy loam, ashy very fine sandy loam	ML	A-4	0-5	0-5	95-100	80-90	70-90	50-70	15-30	NP-5
	42-46	Cemented very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	46-60	Cobbly fine sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
94:												
Chelan, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	70-85	50-65	15-30	NP-5
	10-42	Ashy fine sandy loam, ashy very fine sandy loam	ML	A-4	0-5	0-5	95-100	80-90	70-90	50-70	15-30	NP-5
	42-46	Cemented very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	46-60	Cobbly fine sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
95:												
Chelan, bedrock substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	85-95	85-95	70-85	50-65	15-30	NP-5
	10-25	Ashy sandy loam, ashy very fine sandy loam, fine sandy loam	ML	A-4	0	0-5	85-95	85-95	65-90	50-70	15-30	NP-5
	25-50	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-90	80-90	65-90	45-70	15-30	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
96:												
Chelan, gravelly substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	90-95	80-85	70-85	50-65	15-30	NP-5
	10-25	Ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	25-46	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	46-60	Extremely cobbly sand, extremely gravelly sand	GP, GP-GM	A-1	0-5	30-45	30-45	25-40	10-25	0-5	0-15	NP-5
97:												
Chelan, gravelly substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	90-95	80-85	70-85	50-65	15-30	NP-5
	10-25	Ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	25-46	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	46-60	Extremely cobbly sand, extremely gravelly sand	GP, GP-GM	A-1	0-5	30-45	30-45	25-40	10-25	0-5	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
98:												
Chelan, gravelly substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	0-5	90-95	80-85	70-85	50-65	15-30	NP-5
	10-25	Ashy sandy loam, ashy very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	25-46	Fine sandy loam, sandy loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-95	75-95	70-90	45-70	15-30	NP-5
	46-60	Extremely cobbly sand, extremely gravelly sand	GP, GP-GM	A-1	0-5	30-45	30-45	25-40	10-25	0-5	0-15	NP-5
99:												
Cheviot---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	20-30	65-70	45-60	40-55	30-40	20-30	NP-10
	10-32	Very cobbly silt loam, very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	20-40	50-70	45-60	40-55	30-40	20-30	NP-10
	32-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	45-60	50-70	45-65	35-65	25-50	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
99:												
Ralls----------	0-10	Very cobbly silt loam	GM, ML, SM	A-4	0-5	30-45	50-75	45-70	40-70	35-65	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, cobbly clay loam	CL	A-6	0-5	5-30	70-90	60-85	55-80	50-70	25-40	10-20
	20-32	Gravelly silt loam, gravelly clay loam, cobbly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-5	5-15	70-80	60-70	45-60	35-50	25-35	10-15
	32-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	5-25	40-65	35-60	25-55	20-50	25-40	10-20
Dougville-------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-27	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	27-52	Silt loam	CL-ML, ML	A-4	0	0	100	90-95	75-95	50-85	20-30	NP-10
	52-60	Silt loam, loam	CL, CL-ML, ML	A-4	0	0	100	95-100	75-95	50-85	20-30	NP-10
100:												
Cheviot---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	20-30	65-70	45-60	40-55	30-40	20-30	NP-10
	10-32	Very cobbly silt loam, very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	20-40	50-70	45-60	40-55	30-40	20-30	NP-10
	32-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	45-60	50-70	45-65	35-65	25-50	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
100:												
Ralls----------	0-10	Very cobbly silt loam	GM, ML, SM	A-4	0-5	30-45	50-75	45-70	40-70	35-65	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, cobbly clay loam	CL	A-6	0-5	5-30	70-90	60-85	55-80	50-70	25-40	10-20
	20-32	Gravelly silt loam, gravelly clay loam, cobbly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-5	5-15	70-80	60-70	45-60	35-50	25-35	10-15
	32-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	5-25	40-65	35-60	25-55	20-50	25-40	10-20
Grinrod---------	0-6	Very cobbly silt loam	GC-GM, SM	A-2, A-4	0-10	30-45	50-70	35-60	35-55	25-45	20-25	NP-10
	6-10	Very cobbly loam	GC-GM	A-2, A-4	0-10	25-40	50-65	40-55	35-45	25-40	20-25	NP-10
	10-22	Extremely cobbly loam, very cobbly loam	GM, GC-GM, GP-GC	A-2	0-10	20-50	30-60	25-50	20-40	10-35	30-45	5-20
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
101:												
Cheviot---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	20-30	65-70	45-60	40-55	30-40	20-30	NP-10
	10-32	Very cobbly silt loam, very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	20-40	50-70	45-60	40-55	30-40	20-30	NP-10
	32-60	Extremely cobbly silt loam, very cobbly loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	45-60	50-70	45-65	35-65	25-50	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
101:												
Ralls----------	0-10	Very cobbly silt loam	GM, ML, SM	A-4	0-5	30-45	50-75	45-70	40-70	35-65	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, cobbly clay loam	CL	A-6	0-5	5-30	70-90	60-85	55-80	50-70	25-40	10-20
	20-32	Gravelly silt loam, gravelly clay loam, cobbly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-5	5-15	70-80	60-70	45-60	35-50	25-35	10-15
	32-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	5-25	40-65	35-60	25-55	20-50	25-40	10-20
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
102:												
Conconully------	0-7	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	7-20	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	85-100	85-95	55-80	25-55	15-30	NP-5
	20-32	Cobbly sandy loam, gravelly sandy loam	GM, SM	A-1, A-2	0-10	0-40	60-85	55-80	30-55	15-30	15-30	NP-5
	32-60	Cobbly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-10	0-40	60-80	50-80	30-55	15-30	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
102: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
103: Conconully------	0-7	Ashy sandy loam	SM	A-4, A-2	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	7-20	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	85-100	85-95	55-80	25-55	15-30	NP-5
	20-32	Cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-1	0-10	0-40	60-85	55-80	30-55	15-30	15-30	NP-5
	32-60	Cobbly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-10	0-40	60-80	50-80	30-55	15-30	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
103: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-4, A-2	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-2, A-1	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-2, A-1	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
104: Conconully------	0-7	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	7-20	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	85-100	85-95	55-80	25-55	15-30	NP-5
	20-32	Cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-1	0-10	0-40	60-85	55-80	30-55	15-30	15-30	NP-5
	32-60	Cobbly coarse sandy loam, cobbly sandy loam	GM, SM	A-2, A-1	0-10	0-40	60-80	50-80	30-55	15-30	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
104: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-4, A-2	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
105: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Swakane---------	0-8	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-20	80-90	70-80	60-75	40-60	20-25	NP-10
	8-13	Very gravelly loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	13-18	Extremely gravelly sandy loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
106: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Swakane---------	0-8	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-20	80-90	70-80	60-75	40-60	20-25	NP-10
	8-13	Very gravelly loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	13-18	Extremely gravelly sandy loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
107: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Swakane---------	0-8	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-20	80-90	70-80	60-75	40-60	20-25	NP-10
	8-13	Very gravelly loam, very gravelly sandy loam	GM	A-2, A-1	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	13-18	Extremely gravelly sandy loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
108: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Wagberg---------	0-9	Very cobbly ashy sandy loam	SM, GM	A-2, A-4	0-5	30-40	65-75	60-70	40-60	20-40	15-30	NP-5
	9-26	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	0-5	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	26-48	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	20-30	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
109: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
109:												
Wagberg---------	0-9	Very cobbly ashy sandy loam	SM, GM	A-2, A-4	0-5	30-40	65-75	60-70	40-60	20-40	15-30	NP-5
	9-26	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	0-5	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	26-48	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	20-30	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
110: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Wagberg---------	0-9	Very cobbly ashy sandy loam	SM, GM	A-2, A-4	0-5	30-40	65-75	60-70	40-60	20-40	15-30	NP-5
	9-26	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	0-5	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	26-48	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	20-30	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
111: Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
Wagberg---------	0-9	Very cobbly ashy sandy loam	SM, GM	A-2, A-4	0-5	30-40	65-75	60-70	40-60	20-40	15-30	NP-5
	9-26	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	0-5	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	26-48	Very cobbly coarse sandy loam, very cobbly sandy loam, very gravelly coarse sandy loam	SM, GM	A-1	20-30	25-40	55-75	50-70	35-55	15-35	15-20	NP-5
	48-58	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
112:												
Corbaley--------	0-5	Cobbly ashy fine sandy loam	ML	A-4	0	10-25	75-95	70-90	65-80	50-60	15-30	NP-5
	5-9	Gravelly ashy fine sandy loam, very gravelly ashy fine sandy loam	GM, SM	A-2, A-4	0	5-15	50-80	45-75	35-65	25-50	15-30	NP-5
	9-16	Very gravelly ashy fine sandy loam	GC-GM, GM	A-2, A-4	0	10-20	40-65	35-60	35-55	25-40	15-30	NP-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Kester----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	13-25	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-90	40-70	15-30	NP-5
	25-35	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-90	40-70	15-30	NP-5
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
113:												
Cordy----------	0-16	Ashy loam	ML	A-4	0	0	100	95-100	90-100	65-75	20-35	NP-5
	16-21	Ashy loam	ML	A-4	0	0	100	95-100	90-100	70-85	20-35	NP-5
	21-60	Silt loam, loam	CL, CL-ML	A-4	0	0-10	90-100	85-95	75-95	65-80	20-30	5-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
113:												
Stemilt---------	0-9	Stony ashy loam	CL-ML, ML, SC-SM, SM	A-4	5-10	0-5	75-85	70-80	60-75	40-60	20-35	NP-10
	9-18	Cobbly ashy loam, very cobbly ashy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-10	20-30	80-90	70-80	65-80	45-65	25-35	5-15
	18-40	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
	40-60	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
114:												
Dam----------	---	---	---	---	---	---	---	---	---	---	---	---
115:												
Deercut---------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	20-30	NP-5
	5-10	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	10-24	Silt loam	ML, CL-ML	A-4	0	0	95-100	90-100	80-95	65-85	20-30	NP-10
	24-28	Cemented material			---	---	---	---	---	---	---	---
	28-33	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
116:												
Deercut---------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	20-30	NP-5
	5-10	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	10-24	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-95	65-85	20-30	NP-10
	24-28	Cemented material			---	---	---	---	---	---	---	---
	28-33	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Aarup-----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy very fine sandy loam, ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Whiteye---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-18	Silt loam, loam	CL-ML, ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-30	NP-10
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
117:												
Deercut---------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	20-30	NP-5
	5-10	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	10-24	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-95	65-85	20-30	NP-10
	24-28	Cemented material			---	---	---	---	---	---	---	---
	28-33	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Aarup-----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy very fine sandy loam, ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Whiteye---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-18	Silt loam, loam	CL-ML, ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-30	NP-10
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
118:												
Deercut---------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	20-30	NP-5
	5-10	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	10-24	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	80-95	65-85	20-30	NP-10
	24-28	Cemented material			---	---	---	---	---	---	---	---
	28-33	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	33-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Aarup-----------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-75	15-30	NP-5
	9-16	Ashy very fine sandy loam, ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	100	85-100	70-90	45-75	15-30	NP-5
	16-26	Cemented material			---	---	---	---	---	---	---	---
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Whiteye---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-18	Silt loam, loam	CL-ML, ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-30	NP-10
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
119:												
DelRio----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	13-45	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
	45-60	Loamy fine sand, sandy loam, loamy sand	SM	A-2, A-4	0	0	100	90-100	50-70	15-40	15-20	NP-5
120:												
DelRio----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	13-45	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
	45-60	Loamy fine sand, sandy loam, loamy sand	SM	A-2, A-4	0	0	100	90-100	50-70	15-40	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
121:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	SM, ML	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GP-GM, GW-GM, SM, GM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
121:												
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	GP-GM, SM, SP-SM, GM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
122:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GP-GM, SM, GW-GM, GM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
122:												
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
123:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
123:												
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GP-GM, SP-SM, SM, GM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	SP-SM, SM, GP-GM, GM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
124:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
124:												
Brazlan---------	0-8	Very cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	15-25	75-85	65-75	55-70	25-45	15-30	NP-5
	8-12	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	12-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-34	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
125:												
Dezellem--------	0-10	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	10-20	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	20-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
125:												
Stubblefield----	0-12	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	12-22	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	22-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-41	Cemented material			---	---	---	---	---	---	---	---
	41-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
126:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
126:												
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-20	Ashy loam, ashy fine sandy loam, sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	20-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
127:												
Dezellem--------	0-10	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	10-20	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	20-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
127:												
Timentwa--------	0-14	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	14-33	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	33-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
128:												
Dinkels---------	0-18	Gravelly ashy loam	ML, SM	A-4	0	0-15	80-90	60-75	50-70	40-55	20-25	NP-5
	18-28	Gravelly ashy sandy loam, gravelly ashy fine sandy loam, gravelly ashy loam	SM	A-2, A-4	0	0-10	80-95	60-90	50-60	25-50	20-25	NP-5
	28-41	Gravelly ashy fine sandy loam, very gravelly ashy coarse sandy loam	GM, SM	A-1, A-2, A-4	0-2	5-15	60-85	50-80	30-45	15-40	20-25	NP-5
	41-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
129:												
Dougville-------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-27	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	27-52	Silt loam	CL-ML, ML	A-4	0	0	100	90-95	75-95	50-85	20-30	NP-10
	52-60	Silt loam, loam	CL, CL-ML, ML	A-4	0	0	100	95-100	75-95	50-85	20-30	NP-10
130:												
Dougville-------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-27	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	27-52	Silt loam	CL-ML, ML	A-4	0	0	100	90-95	75-95	50-85	20-30	NP-10
	52-60	Silt loam, loam	CL, CL-ML, ML	A-4	0	0	100	95-100	75-95	50-85	20-30	NP-10
131:												
Dougville-------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-27	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	27-52	Silt loam	CL-ML, ML	A-4	0	0	100	90-95	75-95	50-85	20-30	NP-10
	52-60	Silt loam, loam	ML, CL, CL-ML	A-4	0	0	100	95-100	75-95	50-85	20-30	NP-10
132:												
Dougville-------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
133:												
Dougville-------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
134:												
Dougville-------	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
135:												
Dougville, cemented substratum-----	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-95	55-75	15-30	NP-5
	8-20	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	90-100	75-95	55-75	20-30	NP-5
	20-30	Ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0	100	85-100	75-90	50-75	15-30	NP-5
	30-48	Silt loam	CL-ML	A-4	0	0	75-85	65-75	55-65	50-60	25-30	5-10
	48-59	Silty clay loam	CL, CL-ML, SC	A-2, A-6, A-4	0	0	95-100	90-100	30-95	20-90	25-40	5-15
	59-60	Cemented gravelly silt loam	ML	A-4	0	0	90-100	85-95	80-90	65-85	5-25	NP-5
Badge-----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
136:												
Dougville, cemented substratum-----	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	8-19	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	19-39	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	39-57	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	57-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
Farmer, cemented substratum-----	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
137:												
Dougville, cemented substratum-----	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	8-19	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	19-39	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	39-57	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	57-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
137:												
Farmer, cemented substratum-----	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
138:												
Dougville, cemented substratum-----	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	8-19	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	19-39	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	39-57	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	57-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
138:												
Norax----------	0-4	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	4-34	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-45	15-20
	34-54	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	70-90	55-85	20-30	5-10
	54-60	Cemented silt loam	GM, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-50	10-25	NP-5
Nemire----------	0-16	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	16-37	Ashy fine sandy loam, ashy sandy loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	37-47	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-90	20-30	NP-5
	47-60	Silt loam, loam, fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-90	15-25	NP-5
139:												
Drysel----------	0-7	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	65-95	15-25	NP-5
	7-10	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	65-95	15-25	NP-5
	10-17	Silt loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-100	60-90	20-25	NP-5
	17-26	Gravelly clay loam, clay loam, gravelly loam	CL	A-6, A-7	0	0-15	70-95	65-90	55-85	50-80	35-45	15-20
	26-33	Gravelly clay loam, clay loam, gravelly loam	CL, GC, SC	A-6, A-7	0	0-15	65-90	60-85	50-80	45-75	35-45	15-20
	33-57	Cemented material			---	---	---	---	---	---	---	---
	57-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
140:												
Drysel----------	0-7	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	65-95	15-25	NP-5
	7-10	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	65-95	15-25	NP-5
	10-17	Silt loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-100	60-90	20-25	NP-5
	17-26	Gravelly clay loam, clay loam, gravelly loam	CL	A-6, A-7	0	0-15	70-95	65-90	55-85	50-80	35-45	15-20
	26-33	Gravelly clay loam, clay loam, gravelly loam	CL, GC, SC	A-6, A-7	0	0-15	65-90	60-85	50-80	45-75	35-45	15-20
	33-57	Cemented material			---	---	---	---	---	---	---	---
	57-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Wanapum---------	0-6	Cobbly loam	CL-ML, ML	A-4	0-5	15-30	80-90	80-90	65-75	60-70	20-25	NP-10
	6-15	Very gravelly loam, very gravelly clay loam, very cobbly clay loam	GC, GC-GM, SC, SC-SM	A-2, A-6	0-10	10-30	55-70	45-55	35-45	25-40	25-45	5-20
	15-20	Cemented material			---	---	---	---	---	---	---	---
	20-30	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
141:												
Durixerolls-----	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	CL-ML, ML, SC, SM	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Ellisforde------	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	8-18	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	18-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
142:												
Durixerolls-----	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	CL-ML, CL, SC, SM	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Ellisforde------	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	8-18	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	18-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
143:												
Durixerolls-----	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	SM, CL-ML, CL, SC	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Ellisforde------	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	8-18	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	18-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
144:												
Durixerolls, moist----------	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	CL-ML, CL, SC, SM	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	SM, GM, ML	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
145:												
Durixerolls, moist----------	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	CL-ML, CL, SC, SM	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	ML, SM, SC-SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
146:												
Durixerolls-----	0-9	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-20	NP-5
	9-21	Cobbly loam, silt loam, fine sandy loam	CL-ML, CL, SC, SM	A-4	0-5	20-30	90-95	85-95	60-90	40-70	20-35	NP-15
	21-30	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	30-34	Cobbly sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-2, A-4	0-5	5-10	80-95	75-90	40-85	20-70	20-30	NP-10
	34-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
Durixerolls, moist----------	0-8	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-30	NP-5
	8-38	Loam, silt loam, fine sandy loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	75-95	55-75	20-30	NP-10
	38-45	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	45-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	20-30	NP-10
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
147:												
Durixerolls, moist----------	0-6	Loam	ML	A-4	0	0	95-100	90-100	75-95	55-75	20-35	NP-5
	6-24	Loam, silt loam, fine sandy loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	75-95	55-75	20-30	NP-10
	24-32	Silt loam, loam, very gravelly sandy loam	GC-GM, GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
	32-36	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	36-60	Very gravelly coarse sandy loam, loam, fine sandy loam	GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	20-30	NP-10
Halaquepts------	0-8	Fine sandy loam	ML	A-4	0	0	95-100	95-100	85-90	55-70	15-30	NP-5
	8-15	Silt loam, fine sandy loam	CL-ML, ML	A-4	0	0	95-100	95-100	75-90	55-70	20-30	NP-10
	15-26	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-70	15-30	NP-10
	26-60	Sandy clay loam, sandy loam, very gravelly sandy loam	CL, CL-ML, GM, SC	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-35	NP-15
148:												
Durixerolls, moist----------	0-6	Loam	ML	A-4	0	0	95-100	90-100	75-95	55-75	20-35	NP-5
	6-24	Loam, silt loam, fine sandy loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	75-95	55-75	20-30	NP-10
	24-32	Silt loam, loam, very gravelly sandy loam	GC-GM, GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	15-30	NP-10
	32-36	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	36-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
148:												
Halaquepts------	0-8	Fine sandy loam	ML	A-4	0	0	95-100	95-100	85-90	55-70	15-30	NP-5
	8-15	Silt loam, fine sandy loam	CL-ML, ML	A-4	0	0	95-100	95-100	75-90	55-70	20-30	NP-10
	15-26	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-70	15-30	NP-10
	26-60	Sandy clay loam, sandy loam, very gravelly sandy loam	CL, CL-ML, GM, SC	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-35	NP-15
149:												
Durixerolls-----	0-10	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-30	NP-5
	10-32	Loam, silt loam, fine sandy loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	75-95	55-75	20-30	NP-10
	32-42	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	42-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	20-30	NP-10
Durixerolls, moist----------	0-8	Fine sandy loam	ML	A-4	0	0-10	95-100	90-100	85-90	55-70	15-30	NP-5
	8-38	Loam, silt loam, fine sandy loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	75-95	55-75	20-30	NP-10
	38-45	Cemented cobbly loam	CL-ML, ML	A-4	0-5	20-30	90-95	85-90	70-85	50-65	15-30	NP-10
	45-60	Very gravelly coarse sandy loam, loam, fine sandy loam	CL-ML, GM, GC-GM, ML	A-1, A-2, A-4	0-5	5-15	40-95	30-90	20-85	10-70	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
149:												
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5
150:												
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
151:												
Ebadlow---------	0-8	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	80-95	70-90	20-30	NP-10
	8-32	Silt loam	CL, CL-ML	A-4	0	0-10	90-100	85-95	75-90	60-85	25-35	5-15
	32-49	Very cobbly loam, extremely cobbly loam	GC, GC-GM, GM	A-2, A-4	0	25-50	40-65	35-50	30-50	30-40	25-35	5-15
	49-60	Extremely cobbly sandy loam	GM, GP-GM	A-1	0	30-55	25-50	20-50	10-30	5-15	15-25	NP-5
152:												
Ebadlow---------	0-8	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	80-95	70-90	20-30	NP-10
	8-32	Silt loam	CL, CL-ML	A-4	0	0-10	90-100	85-95	75-90	60-85	25-35	5-15
	32-49	Very cobbly loam, extremely cobbly loam	GC, GC-GM, GM	A-2, A-4	0	25-50	40-65	35-50	30-50	30-40	25-35	5-15
	49-60	Extremely cobbly sandy loam	GM, GP-GM	A-1	0	30-55	25-50	20-50	10-30	5-15	15-25	NP-5
Spofford--------	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100	85-95	20-25	5-10
	9-21	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-95	30-40	10-20
	21-44	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	44-53	Cemented material			---	---	---	---	---	---	---	---
	53-58	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	58-62	Unweathered bedrock			---	---	---	---	---	---	---	---
Badgermont------	0-9	Cobbly loam	CL-ML, SM	A-4	0	10-20	75-95	75-90	55-85	40-65	20-30	NP-10
	9-25	Cobbly loam, very cobbly loam	CL, CL-ML, GC-GM, GM	A-2, A-4	0	15-25	50-85	45-80	40-75	30-60	25-35	5-10
	25-38	Very cobbly clay loam, extremely cobbly clay loam	GC	A-2, A-6, A-7	0-1	25-40	40-55	35-50	30-50	25-40	35-45	15-20
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
153:												
Ebadlow---------	0-8	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	90-100	80-95	70-90	20-30	NP-10
	8-32	Silt loam	CL, CL-ML	A-4	0	0-10	90-100	85-95	75-90	60-85	25-35	5-15
	32-49	Very cobbly loam, extremely cobbly loam	GC, GC-GM, GM	A-2, A-4	0	25-50	40-65	35-50	30-50	30-40	25-35	5-15
	49-60	Extremely cobbly sandy loam	GM, GP-GM	A-1	0	30-55	25-50	20-50	10-30	5-15	15-25	NP-5
Spofford--------	0-9	Silt loam	CL-ML	A-4	0	0	100	100	90-100	85-95	20-25	5-10
	9-21	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-95	30-40	10-20
	21-44	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	80-90	20-30	5-10
	44-53	Cemented material			---	---	---	---	---	---	---	---
	53-58	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	58-62	Unweathered bedrock			---	---	---	---	---	---	---	---
Badgermont------	0-9	Cobbly loam	CL-ML, SM	A-4	0	10-20	75-95	75-90	55-85	40-65	20-30	NP-10
	9-25	Cobbly loam, very cobbly loam	CL, CL-ML, GC-GM, GM	A-2, A-4	0	15-25	50-85	45-80	40-75	30-60	25-35	5-10
	25-38	Very cobbly clay loam, extremely cobbly clay loam	GC	A-2, A-6, A-7	0-1	25-40	40-55	35-50	30-50	25-40	35-45	15-20
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
154:												
Ellisforde------	0-10	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-55	15-25	NP-5
	10-26	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	26-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
155:												
Ellisforde------	0-10	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-55	15-25	NP-5
	10-26	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	26-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10
156:												
Ellisforde------	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	8-18	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	18-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
157:												
Ellisforde------	0-10	Loam	CL-ML, ML	A-4	0	0	100	100	95-100	60-90	15-30	NP-10
	10-27	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	27-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10
158:												
Ellisforde------	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	75-95	65-90	15-25	NP-5
	7-15	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	15-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
158:												
DelRio----------	0-10	Very fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-80	15-30	NP-5
	10-60	Fine sandy loam, sandy loam, very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
Nyssaton--------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	85-90	30-40	5-10
	9-60	Silt loam	ML	A-4	0	0	100	100	90-100	85-90	30-40	5-10
159:												
Ellisforde------	0-10	Loam	CL-ML, ML	A-4	0	0	100	100	95-100	60-90	15-30	NP-10
	10-27	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	27-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10
Halaquepts------	0-8	Fine sandy loam	ML	A-4	0	0	95-100	95-100	85-90	55-70	15-30	NP-5
	8-31	Silt loam, fine sandy loam	CL-ML, ML	A-4	0	0	95-100	95-100	75-90	55-70	20-30	NP-10
	31-38	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-70	15-30	NP-10
	38-45	Silty clay loam, very gravelly sandy loam, sandy loam	CL, CL-ML, SC, ML	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-40	NP-20
	45-50	Sandy clay loam, sandy loam, very gravelly sandy loam	CL, CL-ML, GM, SC	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-35	NP-15
	50-60	Gravelly loam, sandy loam, very gravelly sandy loam	GM, ML, SC-SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
160:												
Ellisforde------	0-19	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	19-36	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	36-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
Nespelem--------	0-9	Fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	20-30	NP-5
	9-28	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	100	100	90-100	50-90	20-30	NP-5
	28-38	Cemented silt loam	ML	A-4	0	0	100	100	95-100	50-90	20-30	NP-5
	38-60	Stratified very fine sandy loam to silty clay loam	ML	A-4	0	0	100	100	95-100	75-90	20-35	NP-10
Nemire, moist---	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	10-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	SM, ML	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
161:												
Ellisforde------	0-7	Silt loam	ML	A-4	0	0	95-100	90-100	75-95	65-90	15-25	NP-5
	7-15	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	15-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
Nyssaton--------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	85-90	30-40	5-10
	9-60	Silt loam	ML	A-4	0	0	100	100	90-100	85-90	30-40	5-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
161:												
DelRio----------	0-10	Very fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-80	15-30	NP-5
	10-60	Fine sandy loam, sandy loam, very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
162:												
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25
163:												
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25
164:												
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25
Leahy-----------	0-6	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-25	NP-5
	6-13	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	85-95	45-55	20-30
	13-27	Silty clay loam, silty clay	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-30
	27-60	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-90	30-50	10-25

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
165:												
Entiat----------	0-6	Gravelly fine sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	40-60	20-35	15-25	NP-5
	6-11	Very gravelly loam, very gravelly sandy loam, very gravelly fine sandy loam	SM	A-1, A-2	0	0-15	70-80	30-50	25-40	10-35	20-30	NP-5
	11-17	Very gravelly sandy loam, very gravelly loam, very gravelly fine sandy loam	SM	A-1	0	0-15	60-70	25-40	15-35	10-25	20-30	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Torriorthents---	0-8	Very cobbly coarse sandy loam	SM	A-1, A-2	0-5	30-50	60-80	50-70	20-50	10-35	15-20	NP-5
	8-60	Very cobbly coarse sand, extremely cobbly sand, extremely gravelly loamy coarse sand	SP	A-1	0-5	35-55	50-70	20-65	5-10	0-5	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
166:												
Entiat----------	0-6	Gravelly fine sandy loam	GM, SM	A-1, A-2	0	0-10	60-80	55-75	40-60	20-35	15-25	NP-5
	6-11	Very gravelly loam, very gravelly sandy loam, very gravelly fine sandy loam	SM	A-1, A-2	0	0-15	70-80	30-50	25-40	10-35	20-30	NP-5
	11-17	Very gravelly sandy loam, very gravelly loam, very gravelly fine sandy loam	SM	A-1	0	0-15	60-70	25-40	15-35	10-25	20-30	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
Roosevelt-------	0-12	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	65-90	30-45	15-20	NP-5
	12-26	Gravelly fine sandy loam, fine sandy loam, cobbly sandy loam	GM, SM	A-1, A-2, A-4	0	0-15	65-85	55-80	35-65	20-40	15-25	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
167:												
Ephrata---------	0-9	Fine sandy loam	SM	A-2, A-4	0	0	85-100	75-95	40-80	25-50	15-25	NP-5
	9-25	Very gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM, SM	A-2, A-4	0	0-15	55-95	50-90	35-60	25-50	0-14	NP
	25-60	Very cobbly coarse sand, extremely gravelly coarse sand, very gravelly sand	GP	A-1	0	20-40	30-50	15-45	5-15	0-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
168:												
Esquatzel-------	0-7	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
	7-12	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
	12-19	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
	19-28	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
	28-46	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
	46-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-25	NP-5
169:												
Esquatzel-------	0-7	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	7-44	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	44-47	Cemented material			---	0-5	90-95	85-90	70-85	50-65	5-25	NP-5
	47-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	95-100	60-90	15-25	NP-5
170:												
Esquatzel-------	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
	10-34	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-100	65-95	15-25	NP-5
	34-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0-5	100	95-100	95-100	60-90	15-25	NP-5
171:												
Ewall-----------	0-18	Loamy fine sand	SM	A-2	0	0	100	100	75-85	15-30	0-15	NP
	18-28	Loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	40-70	5-20	0-15	NP
	28-60	Sand, gravelly sand, coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	75-100	60-100	35-70	5-20	0-15	NP
172:												
Ewall-----------	0-18	Loamy fine sand	SM	A-2	0	0	100	100	75-85	15-30	0-15	NP
	18-28	Loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	40-70	5-20	0-15	NP
	28-60	Sand, gravelly sand, coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	75-100	60-100	35-70	5-20	0-15	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
172:												
Alecanyon-------	0-9	Very cobbly ashy loamy sand	GM, GP-GM, SM	A-1	0-5	20-30	50-75	45-70	20-40	5-20	15-25	NP-5
	9-12	Very cobbly fine sandy loam	GM, SM	A-1	0-5	20-30	50-75	45-70	30-45	15-25	15-30	NP-5
	12-20	Very gravelly loamy coarse sand, very cobbly loamy coarse sand	SP-SM, GP-GM, SM	A-1	0-5	20-35	50-60	40-60	20-35	5-15	---	NP
	20-60	Extremely gravelly coarse sand, very cobbly coarse sand, extremely cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	20-35	35-60	30-50	15-30	0-10	---	NP
173:												
Farmer----------	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
174:												
Farmer----------	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
175:												
Farmer----------	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
176:												
Farmer----------	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
177:												
Farmer----------	0-11	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	11-19	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	95-100	90-100	80-95	55-70	15-30	NP-5
	19-48	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	48-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-25	NP-5
178:												
Farrell----------	0-8	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-60	20-30	NP-5
	8-20	Loam, very fine sandy loam, silt loam	CL-ML	A-4	0	0	100	100	75-85	55-75	20-30	NP-10
	20-60	Stratified coarse sandy loam to silt loam	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	20-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
179:												
Finley----------	0-8	Gravelly fine sandy loam	SM	A-1, A-2, A-4	0	0-5	70-85	50-75	35-65	20-40	15-25	NP-5
	8-23	Very gravelly loam, very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1, A-2	0-5	0-5	40-60	25-45	10-30	5-30	15-25	NP-5
	23-60	Very cobbly loamy sand, extremely gravelly loamy sand, extremely gravelly sand	GM, GP-GM, SM, SP	A-1	0-10	15-45	20-60	15-55	5-35	0-15	---	NP
180:												
Finley----------	0-8	Very cobbly fine sandy loam	SM	A-1, A-2	0-5	40-55	70-80	50-75	40-50	15-35	---	NP
	8-23	Very gravelly loam, very cobbly sandy loam, extremely cobbly fine sandy loam	GM, SM	A-2, A-1	0-2	35-55	40-70	25-60	20-40	10-30	---	NP
	23-60	Very cobbly loamy sand, extremely gravelly loamy sand, extremely cobbly loamy sand	GP, GP-GM	A-1	0-2	35-55	20-50	15-45	5-10	0-10	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
181:												
Finley----------	0-6	Stony loam	ML, SM	A-4	10-15	5-10	75-85	70-80	55-75	35-70	15-25	NP-5
	6-22	Fine sandy loam, gravelly sandy loam, very gravelly loam	GM, SM	A-1, A-2, A-4	0-5	5-15	60-80	50-80	40-65	20-50	15-25	NP-5
	22-26	Very gravelly loam, very gravelly sandy loam, extremely gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2	0-5	0-5	40-60	25-45	10-30	5-30	15-25	NP-5
	26-60	Extremely gravelly loamy sand	GM, GW-GM, SM, SP-SM	A-1	0-10	15-45	20-60	15-45	5-35	5-15	0-15	NP
182:												
Ginnis----------	0-10	Fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-25	NP-5
	10-20	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	20-29	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	29-35	Gravelly sandy loam, sandy loam	SM	A-1	0	0-5	70-85	50-75	35-50	15-25	15-25	NP-5
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---
183:												
Ginnis----------	0-10	Fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-25	NP-5
	10-20	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	20-29	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	29-35	Gravelly sandy loam, sandy loam	SM	A-1	0	0-5	70-85	50-75	35-50	15-25	15-25	NP-5
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---
184:												
Ginnis----------	0-10	Fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-25	NP-5
	10-20	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	20-29	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	29-35	Gravelly sandy loam, sandy loam	SM	A-1	0	0-5	70-85	50-75	35-50	15-25	15-25	NP-5
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
184:												
Swakane---------	0-8	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-20	80-90	70-80	60-75	40-60	20-25	NP-10
	8-13	Very gravelly loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	13-18	Extremely gravelly sandy loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
185:												
Grinrod---------	0-6	Very cobbly silt loam	GC-GM, SM	A-2, A-4	0-10	30-45	50-70	35-60	35-55	25-45	20-25	NP-10
	6-10	Very cobbly loam	GC-GM	A-2, A-4	0-10	25-40	50-65	40-55	35-45	25-40	20-25	NP-10
	10-22	Extremely cobbly loam, very cobbly loam	GM, GC-GM, GP-GC	A-2	0-10	20-50	30-60	25-50	20-40	10-35	30-45	5-20
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls-----------	0-7	Very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-2	30-45	50-75	45-70	40-70	30-60	20-30	NP-10
	7-12	Gravelly clay loam, gravelly silt loam, cobbly clay loam	CL	A-6	0-5	5-30	70-90	60-85	55-80	50-70	25-40	10-20
	12-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	5-25	40-65	35-60	25-55	20-50	25-40	10-20

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
185:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
186:												
Grinrod---------	0-6	Very cobbly silt loam	GC-GM, SM	A-2, A-4	0-10	30-45	50-70	35-60	35-55	25-45	20-25	NP-10
	6-10	Very cobbly loam	GC-GM	A-2, A-4	0-10	25-40	50-65	40-55	35-45	25-40	20-25	NP-10
	10-22	Extremely cobbly loam, very cobbly loam	GM, GC-GM, GP-GC	A-2	0-10	20-50	30-60	25-50	20-40	10-35	30-45	5-20
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls-----------	0-10	Very cobbly silt loam	GM, ML, SM	A-4	0-5	30-45	50-75	45-70	40-70	35-65	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, cobbly clay loam	CL	A-6	0-5	5-30	70-90	60-85	55-80	50-70	25-40	10-20
	20-32	Gravelly silt loam, gravelly clay loam, cobbly silt loam	GC, GC-GM, SC, SC-SM	A-4, A-6	0-5	5-15	70-80	60-70	45-60	35-50	25-35	10-15
	32-60	Very gravelly silt loam, very gravelly clay loam, gravelly clay loam	GC, GC-GM	A-1, A-2	0-5	5-25	40-65	35-60	25-55	20-50	25-40	10-20
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
187:												
Grinrod---------	0-6	Very cobbly silt loam	GC-GM, SM	A-2, A-4	0-10	30-45	50-70	35-60	35-55	25-45	20-25	NP-10
	6-10	Very cobbly loam	GC-GM	A-2, A-4	0-10	25-40	50-65	40-55	35-45	25-40	20-25	NP-10
	10-22	Extremely cobbly loam, very cobbly loam	GM, GC-GM, GP-GC	A-2	0-10	20-50	30-60	25-50	20-40	10-35	30-45	5-20
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
188:												
Halaquepts------	0-8	Fine sandy loam	ML	A-4	0	0	95-100	95-100	85-90	55-70	15-30	NP-5
	8-31	Silt loam, fine sandy loam	CL-ML, ML	A-4	0	0	95-100	95-100	75-90	55-70	20-30	NP-10
	31-38	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-70	15-30	NP-10
	38-45	Silty clay loam, very gravelly sandy loam, sandy loam	CL, CL-ML, SC, ML	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-40	NP-20
	45-50	Sandy clay loam, sandy loam, very gravelly sandy loam	CL, CL-ML, GM, SC	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-85	10-85	15-35	NP-15
	50-60	Gravelly loam, sandy loam, very gravelly sandy loam	GM, ML, SC-SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
188:												
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5
189:												
Hanning---------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	17-28	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	38-51	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-100	70-90	30-35	10-15
	51-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
190:												
Hanning, cemented substratum-----	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	7-28	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	28-50	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	50-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
190:												
McCue----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	6-26	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	26-53	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	53-60	Cemented material			---	---	---	---	---	---	---	---
Badgermont------	0-9	Cobbly loam	CL-ML, SM	A-4	0	10-20	75-95	75-90	55-85	40-65	20-30	NP-10
	9-25	Cobbly loam, very cobbly loam	CL, CL-ML, GC-GM, GM	A-2, A-4	0	15-25	50-85	45-80	40-75	30-60	25-35	5-10
	25-38	Very cobbly clay loam, extremely cobbly clay loam	GC	A-2, A-6, A-7	0-1	25-40	40-55	35-50	30-50	25-40	35-45	15-20
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
191:												
Hanning, cemented substratum-----	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	7-28	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	28-50	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	50-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---
McCue----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	6-26	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	26-53	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	53-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
191:												
Badgermont------	0-9	Cobbly loam	CL-ML, SM	A-4	0	10-20	75-95	75-90	55-85	40-65	20-30	NP-10
	9-25	Cobbly loam, very cobbly loam	CL, CL-ML, GC-GM, GM	A-2, A-4	0	15-25	50-85	45-80	40-75	30-60	25-35	5-10
	25-38	Very cobbly clay loam, extremely cobbly clay loam	GC	A-2, A-6, A-7	0-1	25-40	40-55	35-50	30-50	25-40	35-45	15-20
	38-42	Unweathered bedrock			---	---	---	---	---	---	---	---
192:												
Haploxerolls----	0-8	Silt loam	ML	A-4	0	0	90-100	85-100	70-95	60-90	15-25	NP-5
	8-13	Silt loam, loam, fine sandy loam	ML	A-4	0	0	90-100	85-100	65-90	55-85	15-35	NP-5
	13-47	Stratified gravelly sand to silt loam	GM, GP-GM, ML, SM	A-1, A-2, A-4	0	0	65-100	60-100	20-95	10-90	15-30	NP-5
	47-61	Stratified extremely gravelly coarse sand to sandy loam	GM, ML, SM, SW-SM	A-1, A-2, A-3, A-4	0	10-30	30-95	25-90	5-80	0-60	0-20	NP-5
193:												
Haploxerolls, wet----------	0-5	Silt loam	CL-ML	A-4	0	0-5	90-100	85-95	65-80	50-70	20-30	NP-10
	5-32	Very fine sandy loam, silt loam, fine sandy loam	CL-ML, ML, SC-SM	A-1, A-2, A-4	0	0-10	80-95	70-90	40-80	15-70	15-30	NP-10
	32-43	Ashy loamy sand, ashy fine sandy loam, very gravelly ashy sand	GC-GM, GP-GM, ML, SM	A-1, A-2, A-3, A-4	0	0-15	30-95	25-90	15-75	5-55	0-30	NP-10
	43-60	Ashy sandy loam, very gravelly ashy sandy loam, ashy fine sandy loam	CL-ML, GC-GM, ML, SM	A-1, A-2, A-4	0	0-10	40-95	35-90	25-80	15-65	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
194:												
Haploxerolls----	0-16	Fine sandy loam	SM, ML	A-4	0	0-3	85-100	80-100	60-90	45-70	15-30	NP-5
	16-25	Very fine sandy loam, silt loam, fine sandy loam	SC-SM, ML, SM	A-1, A-2, A-4	0	0-10	80-95	70-90	40-80	15-70	15-30	NP-10
	25-41	Ashy loamy sand, ashy fine sandy loam, very gravelly ashy sand	GM, GC-GM, ML, SM	A-1, A-2, A-3, A-4	0	0-15	30-95	25-90	15-75	5-55	0-30	NP-10
	41-60	Ashy sandy loam, very gravelly ashy sandy loam, ashy fine sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	0-10	40-95	35-90	25-80	15-65	15-30	NP-10
Aquolls---------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	65-95	60-90	20-30	NP-10
	8-20	Silt loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	95-100	60-90	55-90	20-30	NP-10
	20-33	Loam, silt loam, fine sandy loam	CL, CL-ML, ML, SM	A-4, A-6	0	0-10	80-100	75-100	50-90	45-90	20-30	NP-10
	33-40	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	75-100	70-95	20-35	5-15
	40-50	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	95-100	75-100	70-95	20-45	5-20
	50-60	Stratified gravelly loamy coarse sand to silty clay loam	CL, CL-ML, ML, SM	A-2, A-4, A-6, A-7	0	0-10	65-100	60-100	35-100	15-95	15-45	NP-20

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
194: Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5
195: Heytou----------	0-10	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	10-26	Very gravelly sandy loam, very gravelly loam, very cobbly loam	SM, GC-GM, GM, SC-SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	26-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
195:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
196:												
Heytou----------	0-10	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	10-26	Very gravelly sandy loam, very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	26-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
196:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
197:												
Heytou----------	0-10	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	10-26	Very gravelly sandy loam, very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	26-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
197:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
198:												
Heytou----------	0-10	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	10-26	Very gravelly sandy loam, very gravelly loam, very cobbly loam	SM, GC-GM, GM, SC-SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	26-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
198:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
199:												
Heytou----------	0-10	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	10-36	Very gravelly sandy loam, very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	36-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
199:												
Stubblefield----	0-12	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	12-22	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	22-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-41	Cemented material			---	---	---	---	---	---	---	---
	41-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	ML, SM, GC-GM, GM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
Siweeka, bedrock substratum-----	0-13	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	13-27	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	27-39	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	39-43	Cemented material			---	---	---	---	---	---	---	---
	43-47	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
200:												
Heytou----------	0-4	Very stony loam	SM	A-2, A-4	10-25	5-15	70-80	50-60	40-55	25-45	20-25	NP-5
	4-20	Very gravelly sandy loam, very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-30	45-70	40-65	35-55	25-45	15-30	NP-10
	20-60	Very gravelly sandy loam, very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0-5	20-40	50-65	40-60	25-50	15-40	15-30	NP-10
Timentwa--------	0-14	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	14-33	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	33-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	SM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
200:												
Strat----------	0-9	Very cobbly sandy loam	SM	A-1	0-5	25-40	65-80	50-70	30-40	15-30	15-20	NP-5
	9-20	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	20-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP
201:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
202:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
203:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
204:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
205:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
205:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
206:												
Jordy-----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
207:												
Jordy-----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
207:												
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
208:												
Jordy-----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	ML, CL-ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
209:												
Jordy----------	0-12	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	55-70	15-30	NP-5
	12-21	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	21-23	Gravelly silt loam, silt loam	CL-ML, ML	A-4	0	0	75-95	70-90	70-85	60-75	20-30	NP-10
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
210:												
Kester----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	13-25	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-90	40-70	15-30	NP-5
	25-35	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-90	40-70	15-30	NP-5
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
211:												
Kiakus----------	0-3	Loam	ML	A-4	0-5	0-5	95-100	90-95	75-95	55-75	20-25	NP-5
	3-9	Loam	ML	A-4	0-5	0-5	95-100	90-95	75-95	55-75	20-25	NP-5
	9-22	Loam, gravelly loam	CL	A-4	0-5	0-10	95-100	75-95	70-95	50-75	30-35	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
211:												
Shinn----------	0-4	Very gravelly loam	GM, SM	A-2, A-4	0	5-10	60-70	50-60	40-60	30-45	20-25	NP-5
	4-10	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC	A-2	0	15-20	35-45	25-35	20-35	15-30	35-45	10-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Lorena----------	0-12	Silt loam	ML, CL-ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	12-25	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
212:												
Kiakus----------	0-3	Loam	ML	A-4	0-5	0-5	95-100	90-95	75-95	55-75	20-25	NP-5
	3-9	Loam	ML	A-4	0-5	0-5	95-100	90-95	75-95	55-75	20-25	NP-5
	9-22	Loam, gravelly loam	CL	A-4	0-5	0-10	95-100	75-95	70-95	50-75	30-35	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Shinn----------	0-4	Very gravelly loam	GM, SM	A-2, A-4	0	5-10	60-70	50-60	40-60	30-45	20-25	NP-5
	4-10	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC	A-2	0	15-20	35-45	25-35	20-35	15-30	35-45	10-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Lorena----------	0-12	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	12-25	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
213:												
Kiona----------	0-3	Cobbly very fine sandy loam	ML	A-4	0-10	5-15	90-95	70-80	60-75	50-65	20-30	NP-5
	3-19	Cobbly silt loam, very cobbly loam, cobbly very fine sandy loam	GM, ML, SM	A-4	0-10	20-35	60-85	50-75	45-70	35-65	20-30	NP-5
	19-60	Extremely cobbly loam, very cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-10	25-45	45-70	40-60	35-50	15-45	15-25	NP-5
214:												
Kiona----------	0-3	Stony very fine sandy loam	SM	A-4	5-15	5-10	90-95	70-80	35-65	15-55	20-30	NP-5
	3-19	Cobbly silt loam, very cobbly loam, cobbly very fine sandy loam	GM, ML, SM	A-4	0-10	20-35	60-85	50-75	45-70	35-65	20-30	NP-5
	19-60	Extremely cobbly loam, very cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-10	25-45	45-70	40-60	35-50	15-45	15-25	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
215:												
Leahy----------	0-6	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-25	NP-5
	6-13	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	95-100	90-100	85-95	45-55	20-30
	13-27	Silty clay loam, silty clay	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-30
	27-60	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-90	30-50	10-25
Elvedere--------	0-10	Silt loam	CL-ML	A-4	0	0	100	95-100	85-100	75-90	25-30	5-10
	10-18	Silty clay loam	CL	A-7	0	0	100	95-100	90-100	80-95	45-50	20-25
	18-60	Silty clay loam, silty clay	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-50	15-25
Halaquepts, cemented substratum-----	0-3	Fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	3-28	Very fine sandy loam, fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	28-34	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0-5	95-100	95-100	75-90	55-75	20-30	NP-10
	34-38	Cemented silty clay loam	CL-ML, ML	A-4, A-6	0	0-5	95-100	95-100	85-100	65-95	15-30	NP-10
	38-43	Fine sandy loam, very gravelly sandy loam, very gravelly sand	GM, GP-GM, ML, SM	A-1, A-2, A-4	0-5	5-10	60-95	40-90	20-75	10-55	15-25	NP-5
	43-60	Loam, very gravelly sandy loam, very gravelly sand	GM, ML, SM	A-4, A-1, A-2	0-5	5-10	60-95	40-90	20-75	15-55	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
216:												
Leidl----------	0-8	Ashy loam	ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	20-25	NP-5
	8-18	Ashy loam	ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	20-35	NP-5
	18-27	Very cobbly clay loam, very gravelly clay loam	CL, CL-ML	A-4	0-5	20-30	75-85	70-80	65-80	50-65	25-30	5-10
	27-38	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC	A-6	10-15	45-55	50-60	40-50	40-50	35-45	35-40	15-20
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Stemilt, bedrock substratum-----	0-6	Ashy loam	ML, SM	A-4	0-5	0-5	80-90	75-85	65-70	45-55	20-35	NP-5
	6-16	Ashy loam, ashy silt loam	ML, SM	A-4	0-5	0-5	80-90	75-85	65-75	45-65	20-35	NP-5
	16-27	Very gravelly ashy silt loam	GC, GC-GM	A-4	0-5	15-20	65-75	55-65	45-60	35-50	25-30	5-10
	27-50	Very gravelly clay loam, very cobbly clay loam	GC	A-6, A-7	0-5	30-40	60-70	50-60	45-60	35-50	35-45	15-20
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
217:												
Leidl----------	0-8	Ashy loam	ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	20-25	NP-5
	8-18	Ashy loam	ML	A-4	0-5	0-5	95-100	90-95	75-90	55-70	20-35	NP-5
	18-27	Very cobbly clay loam, very gravelly clay loam	CL, CL-ML	A-4	0-5	20-30	75-85	70-80	65-80	50-65	25-30	5-10
	27-38	Extremely cobbly clay loam, extremely gravelly clay loam, very gravelly clay loam	GC	A-6	10-15	45-55	50-60	40-50	40-50	35-45	35-40	15-20
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Stemilt, bedrock substratum-----	0-6	Ashy loam	ML, SM	A-4	0-5	0-5	80-90	75-85	65-70	45-55	20-35	NP-5
	6-16	Ashy loam, ashy silt loam	ML, SM	A-4	0-5	0-5	80-90	75-85	65-75	45-65	20-35	NP-5
	16-27	Very gravelly ashy silt loam	GC, GC-GM	A-4	0-5	15-20	65-75	55-65	45-60	35-50	25-30	5-10
	27-50	Very gravelly clay loam, very cobbly clay loam	GC	A-6, A-7	0-5	30-40	60-70	50-60	45-60	35-50	35-45	15-20
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
218:												
Lickskillet-----	0-5	Very cobbly loam	GC-GM, GM, CL-ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	5-9	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-4, A-6	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	9-14	Very gravelly loam, very gravelly sandy loam, very cobbly loam	CL, GC, GC-GM, SC	A-4, A-6	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
219:												
Lickskillet-----	0-5	Very cobbly loam	GC-GM, GM, CL-ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	5-9	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-4, A-6	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	9-14	Very gravelly loam, very gravelly sandy loam, very cobbly loam	CL, GC, GC-GM, SC	A-4, A-6	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---
220:												
Lickskillet-----	0-4	Very cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	20-50	50-75	45-70	40-65	30-50	25-30	5-10
	4-15	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC, GM	A-2, A-6, A-7	0-10	5-50	40-65	30-50	25-50	20-40	35-45	10-20
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
221:												
Lickskillet-----	0-6	Very stony fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	10-25	15-30	75-95	70-90	50-75	30-60	20-30	NP-10
	6-13	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-4, A-6	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	13-17	Very gravelly loam, very gravelly sandy loam, very cobbly loam	CL, GC, GC-GM, SC	A-2, A-4	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	17-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
221:												
Brazlan---------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	5-10	10-20	75-85	65-75	55-70	25-45	15-30	NP-5
	4-20	Very gravelly loam, very cobbly loam	SM	A-2, A-4	0-5	15-35	70-80	55-65	40-50	25-50	20-35	NP-5
	20-24	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	24-32	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
222:												
Logy----------	0-10	Cobbly sandy loam	SM	A-2	0-5	15-25	80-90	70-80	50-60	20-30	15-20	NP-5
	10-28	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-55	25-45	15-30	10-20	15-25	NP-5
	28-60	Stratified extremely gravelly coarse sand to gravelly sandy loam	GM, GP, GP-GM, SP-SM	A-1, A-2, A-3	0-5	10-35	30-75	20-70	10-55	0-30	0-15	NP-5
223:												
Logy----------	0-10	Cobbly sandy loam	SM	A-2	0-5	15-25	80-90	70-80	50-60	20-30	15-20	NP-5
	10-28	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-55	25-45	15-30	10-20	15-25	NP-5
	28-60	Stratified extremely gravelly coarse sand to gravelly sandy loam	GM, GP, GP-GM, SP-SM	A-1, A-2, A-3	0-5	10-35	30-75	20-70	10-55	0-30	0-15	NP-5
224:												
Logy----------	0-9	Very stony sandy loam	SM	A-1, A-2	10-20	15-25	65-85	55-75	35-50	20-30	15-25	NP-5
	9-22	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-55	25-45	15-30	10-20	15-25	NP-5
	22-60	Stratified extremely gravelly coarse sand to gravelly sandy loam	GM, GP, GP-GM, SP-SM	A-1, A-2, A-3	0-5	10-35	30-75	20-70	10-55	0-30	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
225:												
Lorena----------	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	13-22	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	100	90-100	85-95	65-75	30-35	5-20
	22-26	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
226:												
Lorena----------	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	13-22	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	100	90-100	85-95	65-75	30-35	5-20
	22-26	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
227:												
Lorena----------	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	13-22	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	100	90-100	85-95	65-75	30-35	5-20
	22-26	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Broadax---------	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-18	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	18-27	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	27-60	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-40	5-20
228:												
Lorena----------	0-12	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	12-25	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
228:												
Shinn----------	0-4	Very gravelly loam	GM, SM	A-2, A-4	0	5-10	60-70	50-60	40-60	30-45	20-25	NP-5
	4-10	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC	A-2	0	15-20	35-45	25-35	20-35	15-30	35-45	10-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
229:												
Magallon--------	0-10	Fine sandy loam	SM	A-2, A-4	0	0-5	90-100	80-90	60-70	30-40	20-25	NP-5
	10-19	Sandy loam, fine sandy loam	SM	A-2, A-4	0	0-5	90-100	80-90	55-80	30-50	20-25	NP-5
	19-60	Coarse sand, fine sand, loamy fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-5	90-100	80-90	30-60	0-15	0-15	NP
230:												
Magallon--------	0-10	Fine sandy loam	SM	A-2, A-4	0	0-5	90-100	80-90	60-70	30-40	20-25	NP-5
	10-19	Sandy loam, fine sandy loam	SM	A-2, A-4	0	0-5	90-100	80-90	55-80	30-50	20-25	NP-5
	19-60	Coarse sand, fine sand, loamy fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-5	90-100	80-90	30-60	0-15	0-15	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
231:												
Malaga----------	0-4	Gravelly fine sandy loam	GM, SM	A-2, A-4	0	0-5	60-85	55-75	45-65	25-50	15-25	NP-5
	4-12	Gravelly loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	15-25	NP-5
	12-28	Extremely gravelly fine sandy loam, very gravelly sandy loam, extremely gravelly loam	GM	A-1, A-2	0-5	0-10	30-60	20-55	15-40	10-30	15-25	NP-5
	28-60	Extremely gravelly sand, very cobbly sand, extremely gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	0-10	10-20	30-60	20-55	15-30	0-10	0-15	NP
232:												
Malaga----------	0-4	Cobbly fine sandy loam	GM, ML, SM	A-4	0-10	15-25	85-95	80-85	65-80	35-55	15-25	NP-5
	4-12	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-2, A-4	0-5	0-10	75-85	55-70	45-60	25-50	15-25	NP-5
	12-20	Very gravelly sandy loam, very gravelly fine sandy loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0-5	0-10	30-60	20-55	15-40	10-30	15-25	NP-5
	20-60	Extremely gravelly coarse sand, very cobbly sand, extremely gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	5-15	0-35	30-60	20-55	15-30	0-10	0-15	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
233:												
McCue----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	6-26	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	26-53	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	53-60	Cemented material			---	---	---	---	---	---	---	---
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
234:												
McCue----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	6-26	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	26-53	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	53-60	Cemented material			---	---	---	---	---	---	---	---
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
235:												
McCue----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	6-26	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	26-53	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	53-60	Cemented material			---	---	---	---	---	---	---	---
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
236:												
McCue----------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	7-13	Silty clay loam, silty clay, clay	CH, CL	A-7	0	0	100	95-100	95-100	80-95	45-65	20-40
	13-22	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	22-42	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	42-60	Cemented material			---	---	---	---	---	---	---	---
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
236:												
Mondovi---------	0-20	Silt loam	ML	A-4	0	0	100	95-100	95-100	80-90	20-25	NP-5
	20-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	80-90	20-30	NP-10
237:												
McCue-----------	0-7	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	20-35	5-15
	7-13	Silty clay loam, silty clay, clay	CH, CL	A-7	0	0	100	95-100	95-100	80-95	45-65	20-40
	13-22	Silty clay loam, clay loam	CH, CL	A-7	0	0	100	95-100	95-100	75-95	45-55	20-35
	22-42	Silt loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	70-90	25-45	10-25
	42-60	Cemented material			---	---	---	---	---	---	---	---
Broadax, cemented substratum-----	0-6	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	6-15	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	15-25	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	25-54	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	54-60	Cemented material			---	---	---	---	---	---	---	---
Mondovi---------	0-20	Silt loam	ML	A-4	0	0	100	95-100	95-100	80-90	20-25	NP-5
	20-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	80-90	20-30	NP-10
238:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
239:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
240:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
241:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
242:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
243:												
Morrow----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	8-15	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	70-90	25-35	5-15
	15-26	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	70-90	35-45	15-20
	26-34	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	25-35	5-15
	34-44	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Badge-----------	0-8	Very cobbly silt loam	GC, GC-GM, GM	A-4	5-10	30-45	60-80	50-70	45-65	35-60	20-30	5-10
	8-13	Very gravelly silt loam, cobbly silt loam	CL-ML, ML	A-4	0-5	5-30	70-80	65-75	60-75	55-65	20-30	5-10
	13-28	Extremely cobbly clay loam, very cobbly silt loam, cobbly silt loam	GC, SC	A-2, A-4, A-6	0-5	10-50	45-65	25-50	20-50	15-40	30-40	10-20
	28-60	Very cobbly silt loam, extremely cobbly clay loam, extremely cobbly loam	GC, SC	A-1, A-2, A-4, A-6	0-5	20-50	50-70	25-60	20-60	20-50	30-35	10-15

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
244:												
Nemire----------	0-16	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	16-37	Ashy fine sandy loam, ashy sandy loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-70	20-30	NP-5
	37-47	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-90	20-30	NP-5
	47-60	Silt loam, loam, fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-90	20-30	NP-5
245:												
Nemire----------	0-24	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	24-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
246:												
Nemire----------	0-14	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	14-48	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	48-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-4, A-1, A-2	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
247:												
Nespelem--------	0-10	Very fine sandy loam	ML, SM	A-4	0	0	100	100	80-100	40-55	20-30	NP-5
	10-27	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	100	100	90-100	50-90	20-30	NP-5
	27-31	Cemented silt loam	ML	A-4	0	0	100	100	95-100	50-90	20-30	NP-5
	31-60	Stratified very fine sandy loam to silty clay loam	ML	A-4	0	0	100	100	95-100	75-90	20-35	NP-10
Nemire----------	0-14	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	14-48	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	48-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
248:												
Nespelem--------	0-10	Very fine sandy loam	ML, SM	A-4	0	0	100	100	80-100	40-55	20-30	NP-5
	10-27	Silt loam, very fine sandy loam, loam	ML	A-4	0	0	100	100	90-100	50-90	20-30	NP-5
	27-31	Cemented silt loam	ML	A-4	0	0	100	100	95-100	50-90	20-30	NP-5
	31-60	Stratified very fine sandy loam to silty clay loam	ML	A-4	0	0	100	100	95-100	75-90	20-35	NP-10
Nemire----------	0-14	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	14-48	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	48-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-4, A-1, A-2	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
249:												
Norax----------	0-4	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	4-34	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-45	15-20
	34-54	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	70-90	55-85	20-30	5-10
	54-60	Cemented gravelly sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-50	10-25	NP-5
250:												
Norax----------	0-4	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	4-34	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-45	15-20
	34-54	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	70-90	55-85	20-30	5-10
	54-60	Cemented gravelly sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-50	10-25	NP-5
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
250:												
Dougville, cemented substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
251:												
Norax-----------	0-4	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	4-34	Silty clay loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-45	15-20
	34-54	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	70-90	55-85	20-30	5-10
	54-60	Cemented gravelly sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-50	10-25	NP-5
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
251:												
Dougville, cemented substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
252:												
Norax-----------	0-4	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	4-34	Silty clay loam, clay loam	CL	A-7, A-6	0	0	100	100	90-100	70-95	35-45	15-20
	34-54	Silt loam, loam	CL-ML	A-4	0	0	80-100	75-100	70-90	55-85	20-30	5-10
	54-60	Cemented gravelly sandy loam	GM, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-50	10-25	NP-5
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
252:												
Dougville, cemented substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	9-18	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	18-36	Ashy fine sandy loam, ashy sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	36-58	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-95	80-95	65-85	20-30	NP-10
	58-60	Cemented gravelly silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	10-25	NP-5
253:												
Pateros---------	0-7	Cobbly ashy loam	GM, ML, SM	A-4	0-10	15-30	75-85	70-80	55-75	40-70	20-35	NP-5
	7-18	Very cobbly ashy loam, very cobbly ashy fine sandy loam	GM	A-2	20-30	30-40	55-65	45-55	40-50	30-35	20-30	NP-5
	18-60	Extremely cobbly ashy fine sandy loam	GM	A-2, A-1	5-10	50-60	50-60	40-50	30-40	20-30	15-30	NP-5
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
254:												
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
255:												
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5
256:												
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5
257:												
Peshastin-------	0-12	Fine sandy loam	SM	A-4	0	0	85-100	80-95	55-75	40-50	15-20	NP-5
	12-20	Loam, fine sandy loam	ML, SM	A-4	0	0	80-95	75-90	50-75	40-60	15-25	NP-5
	20-60	Very gravelly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0	0-15	30-50	15-45	10-35	10-30	15-25	NP-5
258:												
Peshastin-------	0-12	Fine sandy loam	SM	A-4	0	0	85-100	80-95	55-75	40-50	15-20	NP-5
	12-20	Loam, fine sandy loam	ML, SM	A-4	0	0	80-95	75-90	50-75	40-60	15-25	NP-5
	20-60	Very gravelly loam, extremely gravelly loam	GM, GP-GM	A-1, A-2	0	0-15	30-50	15-45	10-35	10-30	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
259:												
Peshastin-------	0-9	Stony fine sandy loam	GM, SM	A-2, A-4	5-10	5-10	65-95	60-90	50-75	30-50	15-20	NP-5
	9-20	Cobbly sandy loam	GM, SM	A-4	0-10	10-20	65-95	60-90	50-75	35-50	15-20	NP-5
	20-60	Extremely gravelly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1	0-10	25-35	35-55	20-50	20-40	10-25	0-15	NP-5
260:												
Peshastin-------	0-9	Stony fine sandy loam	GM, SM	A-2, A-4	5-10	5-10	65-95	60-90	50-75	30-50	15-20	NP-5
	9-20	Cobbly sandy loam	GM, SM	A-4	0-10	10-20	65-95	60-90	50-75	35-50	15-20	NP-5
	20-60	Extremely gravelly sandy loam, extremely cobbly sandy loam	GM, GP-GM	A-1	0-10	25-35	35-55	20-50	20-40	10-25	0-15	NP-5
261:												
Pogue-----------	0-9	Fine sandy loam	SM	A-4	0	0	95-100	85-100	70-85	40-50	15-20	NP-5
	9-24	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	24-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
262:												
Pogue----------	0-9	Fine sandy loam	SM	A-4	0	0	95-100	85-100	70-85	40-50	15-20	NP-5
	9-24	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	24-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5
263:												
Pogue----------	0-9	Fine sandy loam	SM	A-4	0	0	95-100	85-100	70-85	40-50	15-20	NP-5
	9-24	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	24-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5
264:												
Pogue----------	0-9	Gravelly fine sandy loam	SM	A-2, A-4	0	0-5	75-95	55-75	40-60	30-40	15-20	NP-5
	9-26	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	26-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
265:												
Pogue----------	0-9	Gravelly fine sandy loam	SM	A-4, A-2	0	0-5	75-95	55-75	40-60	30-40	15-20	NP-5
	9-26	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	26-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5
266:												
Pogue----------	0-8	Cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	75-95	65-90	50-75	30-50	15-20	NP-5
	8-18	Gravelly loam, cobbly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2, A-4	0-2	0-15	60-80	55-75	45-65	25-45	15-20	NP-5
	18-24	Cobbly fine sandy loam, gravelly sandy loam, cobbly loam	GM, SM	A-2, A-4	0-2	0-25	60-80	55-75	50-65	30-50	15-20	NP-5
	24-60	Very gravelly loamy sand, very cobbly sand, very gravelly sand	GM, GP-GM, SM, SP	A-1	0-2	5-45	40-65	30-55	15-30	0-15	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
267:												
Pogue----------	0-13	Cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	75-95	65-90	50-75	30-50	15-20	NP-5
	13-30	Gravelly loam, cobbly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2, A-4	0-2	0-15	60-80	55-75	45-65	25-45	15-20	NP-5
	30-60	Very gravelly loamy sand, very cobbly sand, very gravelly sand	GM, GP-GM, SM, SP	A-1	0-2	5-45	40-65	30-55	15-30	0-15	0-15	NP-5
268:												
Pogue----------	0-10	Extremely stony fine sandy loam	GM, SM	A-2, A-4	30-50	0-15	60-75	60-70	50-60	30-50	15-20	NP-5
	10-15	Gravelly loam, cobbly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2, A-4	0-2	0-15	60-80	55-75	45-65	25-45	15-20	NP-5
	15-28	Cobbly fine sandy loam, gravelly sandy loam, cobbly loam	GM, SM	A-2, A-4	0-2	0-25	60-80	55-75	50-65	30-50	15-20	NP-5
	28-60	Very gravelly loamy sand, very cobbly sand, very gravelly sand	GM, GP-GM, SM, SP	A-1	0-2	5-45	40-65	30-55	15-30	0-15	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
269:												
Pogue----------	0-10	Bouldery fine sandy loam	SM	A-2, A-4	5-10	5-10	75-95	65-85	60-75	30-50	15-20	NP-5
	10-20	Gravelly loam, cobbly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2, A-4	0-2	0-15	60-80	55-75	45-65	25-45	15-20	NP-5
	20-30	Cobbly fine sandy loam, gravelly sandy loam, cobbly loam	GM, SM	A-2, A-4	0-2	0-25	60-80	55-75	50-65	30-50	15-20	NP-5
	30-60	Very gravelly loamy sand, very cobbly sand, very gravelly sand	GM, GP-GM, SM, SP	A-1	0-2	5-45	40-65	30-55	15-30	0-15	0-15	NP-5
270:												
Pogue----------	0-18	Loam	ML	A-4	0	0-5	90-100	85-100	75-85	50-70	15-20	NP-5
	18-25	Fine sandy loam, gravelly loam, gravelly fine sandy loam	SM	A-2, A-4	0	0-10	70-95	60-90	45-75	25-50	15-20	NP-5
	25-60	Very gravelly sand, very cobbly sand, very gravelly loamy sand	GM, GP, SM, SP-SM	A-1	0-2	5-40	50-65	40-55	15-30	0-15	0-15	NP-5
271:												
Prosser----------	0-5	Very fine sandy loam	ML	A-4	0	0	100	95-100	85-95	50-75	20-30	NP-5
	5-16	Very fine sandy loam, silt loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	16-26	Very fine sandy loam, silt loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
271:												
Starbuck--------	0-5	Stony very fine sandy loam	ML, SM	A-4	2-5	6-15	90-100	85-95	80-90	40-60	15-20	NP-5
	5-15	Gravelly loam, very fine sandy loam, silt loam	ML, SM	A-2, A-4	0	0-15	80-90	60-90	50-80	30-60	20-25	NP-5
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
272:												
Quincy----------	0-10	Fine sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	65-90	5-20	0-15	NP-5
	10-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	90-100	65-80	10-30	0-15	NP-5
273:												
Quincy----------	0-6	Fine sand	SM, SP-SM	A-2	0	0-5	95-100	90-100	70-95	10-35	0-14	NP
	6-42	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP
	42-54	Sand, fine sand	SM, SP-SM, SW-SM	A-2, A-4	0	0-10	90-100	85-100	60-90	10-40	0-14	NP
	54-60	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP
274:												
Quincy----------	0-10	Loamy fine sand	SM	A-2	0	0	100	90-100	65-100	15-30	0-15	NP-5
	10-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	90-100	65-80	10-30	0-15	NP-5
275:												
Quincy----------	0-6	Fine sand	SM, SP-SM	A-2	0	0-5	95-100	90-100	70-95	10-35	0-14	NP
	6-60	Sand, fine sand	SM, SP-SM, SW-SM	A-2, A-4	0	0-10	90-100	85-100	60-90	10-40	0-14	NP
DelRio----------	0-10	Very fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-80	15-30	NP-5
	10-60	Fine sandy loam, sandy loam, very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
275:												
Sanbee----------	0-8	Loamy fine sand	SM	A-2, A-4	0	0	80-100	75-95	50-75	20-40	15-30	NP-5
	8-25	Fine sandy loam, sandy loam, coarse sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	25-30	Loamy fine sand, loamy sand, loamy coarse sand	SM, SP-SM	A-1, A-2	0	0	80-100	75-95	40-70	10-30	---	NP
	30-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0	80-100	75-95	40-70	5-35	---	NP
276:												
Quincy----------	0-10	Loamy fine sand	SM	A-2	0	0	100	90-100	65-100	15-30	0-15	NP-5
	10-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	90-100	65-80	10-30	0-15	NP-5
Ellisforde------	0-10	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-55	15-25	NP-5
	10-26	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	26-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10
Cashmere--------	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	65-90	30-45	15-20	NP-5
	11-24	Fine sandy loam, coarse sandy loam, sandy loam	SM	A-2, A-4	0	0-5	90-100	90-100	50-85	25-40	15-25	NP-5
	24-60	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	60-85	30-45	15-20	NP-5
277:												
Quincy----------	0-10	Loamy fine sand	SM	A-2	0	0	100	90-100	65-100	15-30	0-15	NP-5
	10-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	90-100	65-80	10-30	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
277:												
Ellisforde------	0-10	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-55	15-25	NP-5
	10-26	Silt loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	85-100	70-95	15-30	NP-10
	26-60	Stratified loamy very fine sand to silt loam	CL-ML, ML	A-4	0	0	100	100	80-100	60-95	15-30	NP-10
Cashmere--------	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	65-90	30-45	15-20	NP-5
	11-24	Fine sandy loam, coarse sandy loam, sandy loam	SM	A-2, A-4	0	0-5	90-100	90-100	50-85	25-40	15-25	NP-5
	24-60	Fine sandy loam, sandy loam, coarse sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	60-85	30-45	15-20	NP-5
278:												
Quincy----------	0-6	Fine sand	SM, SP-SM	A-2	0	0-5	95-100	90-100	70-95	10-35	0-14	NP
	6-60	Sand, fine sand	SM, SP-SM, SW-SM	A-2, A-4	0	0-10	90-100	85-100	60-90	10-40	0-14	NP
Sanbee----------	0-8	Loamy fine sand	SM	A-2, A-4	0	0	80-100	75-95	50-75	20-40	15-30	NP-5
	8-25	Fine sandy loam, sandy loam, coarse sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	25-30	Loamy fine sand, loamy sand, loamy coarse sand	SM, SP-SM	A-1, A-2	0	0	80-100	75-95	40-70	10-30	---	NP
	30-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0	80-100	75-95	40-70	5-35	---	NP
DelRio----------	0-10	Very fine sandy loam	ML	A-4	0	0	100	90-100	75-95	50-80	15-30	NP-5
	10-60	Fine sandy loam, sandy loam, very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
279:												
Ralls----------	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	85-100	75-95	70-90	60-85	20-30	NP-10
	13-44	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0	5-10	70-85	60-80	55-70	50-60	30-40	10-20
	44-60	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-35	5-15
280:												
Ralls----------	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	85-100	75-95	70-90	60-85	20-30	NP-10
	13-44	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0	5-10	70-85	60-80	55-70	50-60	30-40	10-20
	44-60	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-35	5-15
281:												
Renshigh--------	0-4	Silt loam	CL-ML	A-4	0	0	100	95-100	90-100	75-90	20-30	5-10
	4-21	Silt loam	CL, CL-ML	A-4	0	0	100	95-100	90-100	75-95	25-35	5-15
	21-57	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	75-90	25-30	5-15
	57-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	75-90	20-25	NP-5
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Renslow, cemented substratum-----	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	22-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-48	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	48-60	Cemented material			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
282:												
Renshigh--------	0-4	Silt loam	CL-ML	A-4	0	0	100	95-100	90-100	75-90	20-30	5-10
	4-21	Silt loam	CL, CL-ML	A-4	0	0	100	95-100	90-100	75-95	25-35	5-15
	21-57	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	75-90	25-30	5-15
	57-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	75-90	20-25	NP-5
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Renslow, cemented substratum-----	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	22-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-48	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	48-60	Cemented material			---	---	---	---	---	---	---	---
283:												
Renslow---------	0-9	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	9-23	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	23-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	41-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-95	20-30	NP-10
284:												
Renslow---------	0-9	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	9-23	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	23-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	41-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-95	20-30	NP-10
285:												
Renslow---------	0-9	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	9-23	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	23-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	41-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-95	20-30	NP-10
286:												
Renslow---------	0-9	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	9-23	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	23-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	41-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-95	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
287:												
Renslow---------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	22-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-48	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	48-60	Cemented material			---	---	---	---	---	---	---	---
288:												
Renslow---------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	22-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-48	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	48-60	Cemented material			---	---	---	---	---	---	---	---
289:												
Renslow---------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	8-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-10
	22-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-48	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	48-60	Cemented material			---	---	---	---	---	---	---	---
290:												
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-45	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	45-60	Cemented material			---	---	---	---	---	---	---	---
Achelake--------	0-5	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	5-20	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5
	20-60	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
290:												
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
291:												
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-45	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	45-60	Cemented material			---	---	---	---	---	---	---	---
Achelake--------	0-5	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-90	55-70	15-30	NP-5
	5-20	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5
	20-60	Ashy loam, ashy silt loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	95-100	85-95	55-90	20-30	NP-5
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
292:												
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-45	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	45-60	Cemented material			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Kester----------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	10-25	Ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	40-60	15-30	NP-5
	25-32	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	70-90	45-70	15-30	NP-5
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
293:												
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-29	Silt loam	CL-ML, ML, CL	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-45	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	45-60	Cemented material			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
293:												
Kester----------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	10-25	Ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	40-60	15-30	NP-5
	25-32	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	70-90	45-70	15-30	NP-5
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
294:												
Renslow, cemented substratum-----	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	10-15	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	20-25	NP-5
	15-29	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-95	70-90	20-30	NP-10
	29-45	Silt loam	CL, CL-ML, ML	A-4	0	0	95-100	90-100	85-100	70-95	20-30	NP-10
	45-60	Cemented material			---	---	---	---	---	---	---	---
Alstown---------	0-13	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	13-33	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	33-54	Very gravelly silt loam	SM	A-2, A-4	0	0	80-90	40-50	35-40	30-40	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	100	90-100	85-100	70-90	20-25	NP-5
Kester----------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	10-25	Ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	40-60	15-30	NP-5
	25-32	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	70-90	45-70	15-30	NP-5
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
295:												
Ritzville-------	0-8	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	8-19	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	19-26	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	26-40	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	40-50	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	50-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
296:												
Ritzville-------	0-7	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	7-14	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	14-28	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	28-42	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	42-52	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	52-60	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
297:												
Ritzville-------	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	10-33	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	33-50	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	50-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-20	NP-5
298:												
Ritzville-------	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	10-33	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	33-50	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	50-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-20	NP-5
299:												
Ritzville-------	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	10-33	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	33-50	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	50-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-20	NP-5
300:												
Ritzville-------	0-10	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	10-33	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	33-50	Silt loam	ML	A-4	0	0	100	95-100	90-100	70-90	15-20	NP-5
	50-60	Cemented silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	30-75	25-70	20-70	15-55	5-20	NP-5
301:												
Riverwash-------	0-60	---			---	---	---	---	---	---	---	---
302:												
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
302:												
Couleedam-------	0-4	Very stony sandy loam	GM, SM	A-1, A-2	10-25	10-30	60-90	55-85	35-60	20-35	15-25	NP-5
	4-9	Very gravelly sandy loam, very cobbly sandy loam	GM, SM	A-1, A-2	0-5	10-40	50-90	45-65	30-40	15-30	15-25	NP-5
	9-16	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0-10	10-35	40-70	35-65	20-30	10-25	15-25	NP-5
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Roosevelt-------	0-12	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	65-90	30-45	15-20	NP-5
	12-26	Gravelly fine sandy loam, fine sandy loam, cobbly sandy loam	GM, SM	A-1, A-2, A-4	0	0-15	65-85	55-80	35-65	20-40	15-25	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
303:												
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Ginnis----------	0-10	Fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-25	NP-5
	10-20	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	20-29	Sandy loam	ML, SM	A-2, A-4	0	0-5	75-90	60-85	55-75	30-55	15-25	NP-5
	29-35	Gravelly sandy loam, sandy loam	SM	A-1	0	0-5	70-85	50-75	35-50	15-25	15-25	NP-5
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
303:												
Swakane---------	0-8	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-20	80-90	70-80	60-75	40-60	20-25	NP-10
	8-13	Very gravelly loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	13-18	Extremely gravelly sandy loam, very gravelly sandy loam	GM	A-1, A-2	0-10	10-30	35-60	25-50	15-45	10-35	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
304:												
Roloff----------	0-11	Silt loam	ML	A-4	0	0-5	95-100	90-95	80-90	70-80	20-30	NP-5
	11-17	Silt loam, very fine sandy loam	ML	A-4	0	0-10	80-90	75-85	60-70	50-60	20-30	NP-5
	17-29	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0-10	70-90	60-85	55-70	50-60	20-30	NP-5
	29-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
305:												
Royal-----------	0-10	Loamy fine sand	SM	A-2, A-4	0	0-5	95-100	95-100	80-90	30-40	0-14	NP
	10-16	Fine sandy loam, very fine sandy loam	SM	A-4	0	0-5	95-100	95-100	80-95	35-50	20-30	NP-5
	16-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0-5	95-100	95-100	80-95	30-45	20-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
306:												
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
307:												
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Stemilt---------	0-9	Stony ashy loam	CL-ML, ML, SC-SM, SM	A-4	5-10	0-5	75-85	70-80	60-75	40-60	20-35	NP-10
	9-18	Cobbly ashy loam, very cobbly ashy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-10	20-30	80-90	70-80	65-80	45-65	25-35	5-15
	18-40	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
	40-60	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
308:												
Sagehill--------	0-8	Very fine sandy loam	ML, SM	A-4	0	0-5	95-100	95-100	90-95	45-60	0-14	NP
	8-19	Very fine sandy loam, silt loam, loamy very fine sand	ML	A-4	0	0-5	95-100	95-100	90-95	55-80	0-14	NP
	19-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0-5	95-100	95-100	90-95	60-75	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
309:												
Sanbee----------	0-7	Loamy fine sand	SM	A-2, A-4	0	0	80-100	75-95	50-75	20-40	15-30	NP-5
	7-19	Fine sandy loam, sandy loam, coarse sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	19-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-3, A-1, A-2	0	0	80-100	75-95	40-70	5-35	---	NP
310:												
Sanbee----------	0-8	Ashy sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	8-12	Ashy sandy loam, ashy coarse sandy loam, ashy fine sandy loam	SM	A-1, A-2, A-4	0	0	80-100	75-95	45-75	20-50	15-30	NP-5
	12-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0	80-100	75-95	40-70	5-35	---	NP
311:												
Sanbee----------	0-7	Ashy fine sandy loam	ML, SM	A-4	0	0	80-100	75-95	55-80	35-55	15-30	NP-5
	7-14	Ashy fine sandy loam, ashy sandy loam, ashy coarse sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	14-28	Ashy sandy loam, ashy coarse sandy loam	SM	A-1, A-2, A-4	0	0	80-100	75-95	45-75	20-50	15-30	NP-5
	28-37	Loamy fine sand, loamy sand, loamy coarse sand	SM, SP-SM	A-1, A-2	0	0	80-100	75-95	40-70	10-30	---	NP
	37-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0	80-100	75-95	40-70	5-35	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
312:												
Sanbee----------	0-8	Ashy sandy loam	ML, SM	A-2, A-4	0	0	80-100	75-95	45-75	25-55	15-30	NP-5
	8-12	Ashy sandy loam, ashy coarse sandy loam, ashy fine sandy loam	SM	A-1, A-2, A-4	0	0	80-100	75-95	45-75	20-50	15-30	NP-5
	12-60	Sand, coarse sand, fine sand	SM, SP-SM, SW-SM	A-1, A-2, A-3	0	0	80-100	75-95	40-70	5-35	---	NP
Quincy----------	0-6	Fine sand	SM, SP-SM	A-2	0	0-5	95-100	90-100	70-95	10-35	0-14	NP
	6-42	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP
	42-54	Sand, fine sand	SM, SP-SM, SW-SM	A-2, A-4	0	0-10	90-100	85-100	60-90	10-40	0-14	NP
	54-60	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP
313:												
Schawana--------	0-3	Loamy fine sand	SM	A-2, A-4	0	0-5	90-95	85-95	65-85	10-45	0-14	NP
	3-12	Very fine sandy loam, gravelly loamy very fine sand, gravelly very fine sandy loam	SM	A-2, A-4	0	0-5	70-95	60-90	50-60	20-50	15-25	NP-5
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Schawana, cobbly	0-3	Cobbly loamy fine sand	SM, SP-SM	A-2, A-3	0	20-30	70-80	65-80	50-60	5-30	0-14	NP
	3-12	Gravelly very fine sandy loam, very fine sandy loam, gravelly loamy very fine sand	SM	A-2, A-4	0	0-10	70-90	65-85	50-60	15-45	15-25	NP-5
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
314:												
Selah----------	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	16-23	Clay loam, silty clay loam, silt loam	CL	A-6	0	0-10	95-100	85-95	75-90	55-85	35-45	10-20
	23-31	Gravelly loam, gravelly silt loam, silt loam	CL-ML, ML, SC, GC	A-6, A-4	0	0-25	60-90	55-85	45-75	35-65	15-35	NP-15
	31-35	Cemented material			---	---	---	---	---	---	---	---
	35-40	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---
315:												
Sevar----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	15-30	NP-5
	5-10	Ashy silt loam, ashy loam	CL-ML	A-4	0	0	100	90-100	85-100	60-90	20-35	5-10
	10-24	Silty clay loam, silt loam	CL, CL-ML	A-4	0	0	100	90-100	80-100	65-90	30-35	5-15
	24-28	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	85-95	60-90	20-30	5-10
	28-32	Cemented material			---	---	---	---	---	---	---	---
	32-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
316:												
Shinn----------	0-4	Very gravelly loam	GM, SM	A-2, A-4	0	5-10	60-70	50-60	40-60	30-45	20-25	NP-5
	4-10	Extremely gravelly clay loam, very gravelly loam, extremely gravelly loam	GC	A-2	0	15-20	35-45	25-35	20-35	15-30	35-45	10-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Lorena----------	0-12	Silt loam	CL-ML, ML	A-4	0	0-5	100	95-100	85-95	70-80	20-30	NP-10
	12-25	Clay loam, silt loam, cobbly loam	CL, CL-ML	A-4, A-6	0	0-20	85-100	80-100	70-95	55-75	30-40	5-20
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
317:												
Silico----------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-12	Ashy fine sandy loam, ashy loam	ML, SM	A-4	0	0	100	85-100	75-95	45-75	20-30	NP-5
	12-16	Cemented material			---	---	---	---	---	---	---	---
	16-21	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
318:												
Silico----------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-12	Ashy fine sandy loam, ashy loam	ML, SM	A-4	0	0	100	85-100	75-95	45-75	20-30	NP-5
	12-16	Cemented material			---	---	---	---	---	---	---	---
	16-21	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
Sevar----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	15-30	NP-5
	5-10	Ashy silt loam, ashy loam	CL-ML	A-4	0	0	100	90-100	85-100	60-90	20-35	5-10
	10-24	Silty clay loam, silt loam	CL, CL-ML	A-4	0	0	100	90-100	80-100	65-90	30-35	5-15
	24-28	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	85-95	60-90	20-30	5-10
	28-32	Cemented material			---	---	---	---	---	---	---	---
	32-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
318:												
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
319:												
Silico----------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-12	Ashy fine sandy loam, ashy loam	ML, SM	A-4	0	0	100	85-100	75-95	45-75	20-30	NP-5
	12-16	Cemented material			---	---	---	---	---	---	---	---
	16-21	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
319:												
Sevar----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	15-30	NP-5
	5-10	Ashy silt loam, ashy loam	CL-ML	A-4	0	0	100	90-100	85-100	60-90	20-35	5-10
	10-24	Silty clay loam, silt loam	CL, CL-ML	A-4	0	0	100	90-100	80-100	65-90	30-35	5-15
	24-28	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	85-95	60-90	20-30	5-10
	28-32	Cemented material			---	---	---	---	---	---	---	---
	32-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
320:												
Silico----------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	6-12	Ashy fine sandy loam, ashy loam	ML, SM	A-4	0	0	100	85-100	75-95	45-75	20-30	NP-5
	12-16	Cemented material			---	---	---	---	---	---	---	---
	16-21	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
Sevar----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	80-95	55-75	15-30	NP-5
	5-10	Ashy silt loam, ashy loam	CL-ML	A-4	0	0	100	90-100	85-100	60-90	20-35	5-10
	10-24	Silty clay loam, silt loam	CL, CL-ML	A-4	0	0	100	90-100	80-100	65-90	30-35	5-15
	24-28	Silt loam, loam	CL-ML	A-4	0	0	95-100	90-100	85-95	60-90	20-30	5-10
	28-32	Cemented material			---	---	---	---	---	---	---	---
	32-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
320:												
Dutchenry-------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-15	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	15-33	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	33-37	Cemented material			---	---	---	---	---	---	---	---
	37-42	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
321:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10
322:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10
323:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
324:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10
Ellisforde------	0-8	Very fine sandy loam	ML	A-4	0	0	95-100	90-100	75-85	50-65	15-20	NP-5
	8-18	Very fine sandy loam, silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
	18-60	Stratified very fine sandy loam to silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	75-95	50-90	15-30	NP-10
DelRio----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	13-45	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
	45-60	Loamy fine sand, sandy loam, loamy sand	SM	A-2, A-4	0	0	100	90-100	50-70	15-40	15-20	NP-5
325:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
325:												
Zeemal----------	0-8	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	60-85	40-55	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy loam, ashy silt loam	ML, SM	A-4	0	0	95-100	95-100	60-100	40-90	20-30	NP-5
	12-17	Cemented sandy loam	ML, SM	A-4	0	0	95-100	90-100	60-90	40-70	5-25	NP-5
	17-33	Silt loam, loamy fine sand	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	65-90	20-30	NP-15
	33-60	Silt loam, silty clay loam	CL, CL-ML	A-6	0	0	95-100	95-100	85-100	65-95	25-45	5-20
326:												
Simsfield-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	85-100	60-85	35-55	15-30	NP-5
	12-18	Ashy loam, ashy silt loam	ML	A-4	0	0	95-100	85-100	70-100	50-90	20-35	NP-5
	18-28	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	70-100	50-90	20-30	NP-10
	28-34	Cemented silt loam	ML	A-4	0	0	95-100	85-100	75-100	60-90	5-15	NP-5
	34-60	Silt loam, silt	CL-ML, ML	A-4	0	0	95-100	85-100	75-100	60-90	15-30	NP-10
Zeemal----------	0-8	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	60-85	40-55	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy loam, ashy silt loam	ML, SM	A-4	0	0	95-100	95-100	60-100	40-90	20-30	NP-5
	12-17	Cemented sandy loam	ML, SM	A-4	0	0	95-100	90-100	60-90	40-70	5-25	NP-5
	17-33	Silt loam, loamy fine sand	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	65-90	20-30	NP-15
	33-60	Silt loam, silty clay loam	CL, CL-ML	A-6	0	0	95-100	95-100	85-100	65-95	25-45	5-20

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
327:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
327:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material	---	---	---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
328:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
328:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material	---	---	---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
329:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
329:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
330:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
330:												
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
331:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
332:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
333:												
Siweeka, bedrock substrarum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Ashy cobbly sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	SM, GP-GM, GM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
334:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material	---	---	---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GM, SM, SP-SM, GP-GM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	SP-SM, GM, GP-GM, SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
335:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	SP-SM, GM, GP-GM, SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
336:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Brazlan---------	0-8	Very cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	15-25	75-85	65-75	55-70	25-45	15-30	NP-5
	8-12	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	12-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-34	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	34-38	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
336:												
Brazlan, extremely bouldery-------	0-5	Extremely bouldery fine sandy loam	SM	A-2, A-4	30-50	10-20	75-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very gravelly loam, very cobbly loam	SM	A-2, A-4	0-5	15-35	70-80	55-65	40-50	25-50	20-35	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
337:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
337:												
Brazlan---------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	10-30	10-20	75-85	65-75	55-70	25-45	15-30	NP-5
	4-20	Very gravelly loam, very cobbly loam	SM	A-2, A-4	0-5	15-35	70-80	55-65	40-50	25-50	20-35	NP-5
	20-24	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	24-32	Cemented gravelly coarse sandy loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
338:												
Siweeka, bedrock substratum-----	0-13	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	13-27	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	27-39	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	39-43	Cemented material			---	---	---	---	---	---	---	---
	43-47	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
338:												
Lickskillet-----	0-6	Very cobbly loam	CL-ML, GM, ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	6-12	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-4, A-6	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	12-18	Very gravelly loam, very gravelly sandy loam, very cobbly loam	CL, GC, GC-GM, SC	A-2, A-4	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---
339:												
Siweeka, bedrock substratum-----	0-13	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	13-27	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	27-39	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	39-43	Cemented material			---	---	---	---	---	---	---	---
	43-47	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
339:												
Stubblefield----	0-12	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	12-22	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	22-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-41	Cemented material			---	---	---	---	---	---	---	---
	41-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
Timentwa--------	0-14	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	14-33	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	33-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
340:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-27	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	27-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
340:												
Dezellem--------	0-9	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	9-30	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	30-60	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
341:												
Siweeka---------	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-31	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	31-40	Cemented material			---	---	---	---	---	---	---	---
	40-60	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
341:												
Timentwa--------	0-14	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	14-33	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	33-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	SM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
Stubblefield----	0-9	Very stony fine sandy loam	GM, ML, SM	A-2, A-4	10-20	10-25	60-80	55-75	40-70	25-55	15-25	NP-5
	9-15	Gravelly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-2, A-4	0-10	10-40	50-80	45-75	35-65	25-55	20-25	NP-5
	15-27	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	27-57	Cemented material			---	---	---	---	---	---	---	---
	57-60	Extremely cobbly sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0-10	15-55	45-75	40-70	30-60	20-50	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
342:												
Skaha----------	0-6	Cobbly loamy sand	SM	A-1, A-2	0-5	15-30	75-95	70-90	40-70	10-25	0-15	NP-5
	6-15	Cobbly loamy sand	SM	A-1, A-2	0-5	30-50	75-95	70-90	40-70	10-25	0-15	NP-5
	15-60	Extremely gravelly loamy coarse sand, very gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, SP	A-1	0-5	15-50	30-55	20-45	10-30	0-5	0-14	NP
343:												
Skaha----------	0-8	Very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	20-40	50-80	45-70	30-40	10-20	0-15	NP-5
	8-22	Extremely gravelly loamy coarse sand, very gravelly loamy sand, very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	0-45	20-60	20-50	20-40	5-20	0-15	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0-5	0-55	20-60	20-50	10-30	0-10	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
344:												
Skaha----------	0-8	Very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	20-40	50-80	45-70	30-40	10-20	0-15	NP-5
	8-22	Extremely gravelly loamy coarse sand, very gravelly loamy sand, very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	0-45	20-60	20-50	20-40	5-20	0-15	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0-5	0-55	20-60	20-50	10-30	0-10	0-15	NP-5
345:												
Skaha----------	0-8	Very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	20-40	50-80	45-70	30-40	10-20	0-15	NP-5
	8-22	Extremely gravelly loamy coarse sand, very gravelly loamy sand, very cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-5	0-45	20-60	20-50	20-40	5-20	0-15	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand, extremely cobbly coarse sand	SP, SP-SM, GP, GP-GM	A-1	0-5	0-55	20-60	20-50	10-30	0-10	0-15	NP-5
Quincy----------	0-6	Fine sand	SM, SP-SM	A-2	0	0-5	95-100	90-100	70-95	10-35	0-14	NP
	6-42	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP
	42-54	Sand, fine sand	SM, SP-SM, SW-SM	A-2, A-4	0	0-10	90-100	85-100	60-90	10-40	0-14	NP
	54-60	Loamy fine sand, loamy sand	SM	A-2, A-4	0	0-10	90-100	85-100	65-95	15-45	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
346:												
Skaha----------	0-9	Gravelly fine sandy loam	GM, ML, SM	A-4	0-5	0-15	65-90	60-85	45-65	35-65	15-25	NP-5
	9-60	Very gravelly coarse sand, extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0-5	0-55	20-60	20-50	10-30	0-10	0-15	NP-5
Tubspring-------	0-12	Fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-35	Fine sandy loam, sandy loam, gravelly fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
347:												
Slickear--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	10-22	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	22-46	Silty clay loam, silt loam	ML, CL-ML	A-4	0	0	100	95-100	90-100	70-95	30-40	5-15
	46-50	Cemented material			---	---	---	---	---	---	---	---
	50-55	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
348:												
Slickear--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	10-22	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	22-46	Silty clay loam, silt loam	ML, CL-ML	A-4	0	0	100	95-100	90-100	70-95	30-40	5-15
	46-50	Cemented material			---	---	---	---	---	---	---	---
	50-55	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	55-59	Unweathered bedrock			---	---	---	---	---	---	---	---
349:												
Slusser---------	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-20	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	20-52	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	52-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
350:												
Slusser---------	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-20	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	20-52	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	52-60	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
351:												
Slusser---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	7-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	22-46	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	46-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---
352:												
Slusser---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	7-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	22-46	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	46-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---
353:												
Slusser---------	0-6	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	6-11	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	28-41	Silt loam	CL-ML, ML	A-4	0	0	95-100	90-100	85-100	65-90	20-30	NP-10
	41-45	Cemented material			---	---	---	---	---	---	---	---
	45-50	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	50-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
354:												
Slusser, cemented substratum-----	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	7-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	22-46	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	46-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---
Alsash----------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	7-11	Ashy fine sandy loam, ashy very fine sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	65-85	20-30	NP-10
	28-60	Gravelly fine sandy loam, very gravelly fine sandy loam, gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0	40-70	35-65	30-60	20-50	15-20	NP-5
Nemire, moist---	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	8-20	Ashy fine sandy loam, ashy sandy loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	20-60	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-90	20-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
355:												
Slusser, cemented substratum-----	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-90	50-65	15-30	NP-5
	7-12	Ashy fine sandy loam, ashy silt loam, ashy loam	ML	A-4	0	0	100	95-100	80-90	55-70	20-30	NP-5
	12-22	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	22-46	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	46-58	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	70-90	20-30	NP-10
	58-60	Cemented material			---	---	---	---	---	---	---	---
Alsash----------	0-7	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	7-11	Ashy fine sandy loam, ashy very fine sandy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-75	20-30	NP-5
	11-28	Silt loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	65-85	20-30	NP-10
	28-60	Gravelly fine sandy loam, very gravelly fine sandy loam, gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0	40-70	35-65	30-60	20-50	15-20	NP-5
Nemire----------	0-8	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	8-20	Ashy fine sandy loam, ashy sandy loam, ashy loam	ML	A-4	0	0	100	90-100	75-90	50-75	20-30	NP-5
	20-60	Ashy fine sandy loam, ashy loam, ashy silt loam	ML	A-4	0	0	100	90-100	75-95	50-90	20-30	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
356:												
Soaplake--------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	85-95	65-90	30-45	15-20	NP-5
	4-12	Fine sandy loam, gravelly sandy loam	ML, SM	A-2, A-4	0	0-10	75-100	70-95	40-75	25-55	15-25	NP-5
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Roosevelt-------	0-12	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	65-90	30-45	15-20	NP-5
	12-26	Gravelly fine sandy loam, fine sandy loam, cobbly sandy loam	GM, SM	A-1, A-2, A-4	0	0-15	65-85	55-80	35-65	20-40	15-25	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
357:												
Soaplake--------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	85-95	65-90	30-45	15-20	NP-5
	4-12	Fine sandy loam, gravelly sandy loam	ML, SM	A-2, A-4	0	0-10	75-100	70-95	40-75	25-55	15-25	NP-5
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Roosevelt-------	0-12	Fine sandy loam	SM	A-2, A-4	0	0-5	95-100	90-100	65-90	30-45	15-20	NP-5
	12-26	Gravelly fine sandy loam, fine sandy loam, cobbly sandy loam	GM, SM	A-1, A-2, A-4	0	0-15	65-85	55-80	35-65	20-40	15-25	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
358:												
Sprauer---------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-22	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-65	15-30	NP-5
	22-30	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	65-90	45-70	20-30	NP-5
	30-40	Cemented material	---	---	---	---	---	---	---	---	---	---
	40-44	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
359:												
Sprauer---------	0-8	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	8-22	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-65	15-30	NP-5
	22-30	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0-5	90-100	85-100	65-90	45-70	20-30	NP-5
	30-40	Cemented material	---	---	---	---	---	---	---	---	---	---
	40-44	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
360:												
St. Andrews-----	0-7	Ashy loam	ML, SM	A-4	0	0-15	80-100	75-95	65-90	45-70	20-35	NP-5
	7-14	Ashy silt loam, ashy loam	ML	A-4	0	0-15	80-100	75-95	65-90	50-80	20-35	NP-5
	14-29	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0-15	80-100	75-95	70-95	55-85	25-35	5-15
	29-33	Cemented material	---	---	---	---	---	---	---	---	---	---
	33-60	Gravelly coarse sandy loam, cobbly sandy loam, gravelly loam	GM, ML, SM	A-2, A-4	0-10	10-40	60-90	55-85	40-70	25-55	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
361:												
St. Andrews-----	0-7	Ashy loam	ML, SM	A-4	0	0-15	80-100	75-95	65-90	45-70	20-35	NP-5
	7-14	Ashy silt loam, ashy loam	ML	A-4	0	0-15	80-100	75-95	65-90	50-80	20-35	NP-5
	14-29	Silt loam, loam	CL, CL-ML	A-4, A-6	0	0-15	80-100	75-95	70-95	55-85	25-35	5-15
	29-33	Cemented material			---	---	---	---	---	---	---	---
	33-60	Gravelly coarse sandy loam, cobbly sandy loam, gravelly loam	GM, ML, SM	A-2, A-4	0-10	10-40	60-90	55-85	40-70	25-55	15-25	NP-5
362:												
Starbuck--------	0-5	Stony very fine sandy loam	SM, ML	A-4	2-5	6-15	90-100	85-95	80-90	40-60	15-20	NP-5
	5-15	Gravelly fine sandy loam, fine sandy loam, silt loam	ML, SM	A-2, A-4	0	0-15	75-90	60-90	45-60	30-60	20-25	NP-5
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Bakeoven--------	0-4	Very cobbly loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	4-7	Very gravelly clay loam, very cobbly loam, very gravelly loam	GC, GM	A-4, A-6	0-15	10-40	50-65	45-60	40-55	35-50	30-40	5-15
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
363:												
Stemilt---------	0-9	Stony ashy loam	CL-ML, ML, SC-SM, SM	A-4	5-10	0-5	75-85	70-80	60-75	40-60	20-35	NP-10
	9-18	Cobbly ashy loam, very cobbly ashy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-10	20-30	80-90	70-80	65-80	45-65	25-35	5-15
	18-40	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
	40-60	Very cobbly clay loam, extremely cobbly clay loam	CL, GC, SC	A-6, A-7	5-15	45-60	65-75	60-70	55-70	40-55	35-45	15-20
Cordy-----------	0-16	Ashy loam	ML	A-4	0	0	100	95-100	90-100	65-75	20-35	NP-5
	16-21	Ashy loam	ML	A-4	0	0	100	95-100	90-100	70-85	20-35	NP-5
	21-60	Silt loam, loam	CL, CL-ML	A-4	0	0-10	90-100	85-95	75-95	65-80	20-30	5-10
364:												
Strat-----------	0-8	Very cobbly sandy loam	SM	A-1	0-5	25-40	65-80	50-70	30-40	15-30	15-20	NP-5
	8-18	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	18-27	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	27-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
365:												
Strat----------	0-8	Very cobbly sandy loam	SM	A-1	0-5	25-40	65-80	50-70	30-40	15-30	15-20	NP-5
	8-18	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	18-27	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	27-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP
366:												
Strat----------	0-8	Very cobbly sandy loam	SM	A-1	0-5	25-40	65-80	50-70	30-40	15-30	15-20	NP-5
	8-18	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	18-27	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	27-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
367:												
Strat----------	0-8	Cobbly loam	ML	A-4	0-5	15-30	80-95	70-90	60-70	50-60	30-40	5-10
	8-23	Very cobbly loam, very gravelly loam	GM, SM	A-2, A-4	0-5	25-45	60-75	40-65	30-45	25-40	30-40	5-10
	23-60	Extremely gravelly coarse sand, very gravelly sand	GP, GP-GM	A-1	0-10	25-35	40-50	10-45	5-10	0-5	0-14	NP
368:												
Strat----------	0-8	Stony loam	SM	A-4	5-10	5-15	85-95	80-95	50-60	40-50	30-40	5-10
	8-23	Very cobbly loam, very gravelly loam	GM, SM	A-2, A-4	0-5	25-45	60-75	40-65	30-45	25-40	30-40	5-10
	23-60	Extremely gravelly coarse sand, very gravelly sand	GP, GP-GM	A-1	0-10	25-35	40-50	10-45	5-10	0-5	0-14	NP
369:												
Strat----------	0-9	Silt loam	ML	A-4	0	0	95-100	75-90	70-85	60-80	20-25	NP-5
	9-24	Very cobbly loam, very gravelly loam	GC, GC-GM, GM	A-2, A-4	0	20-30	60-75	50-60	40-55	35-50	20-25	NP-10
	24-60	Extremely gravelly loamy sand, extremely gravelly sand, extremely cobbly coarse sand	GP	A-1	0-3	15-40	40-50	30-40	5-20	0-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
370:												
Strat----------	0-10	Very stony silt loam	ML, GM	A-4	20-35	10-20	65-80	50-70	45-70	35-60	20-25	NP-5
	10-22	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	22-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP
371:												
Strat----------	0-9	Cobbly sandy loam	GM, SM	A-4	0-5	15-25	65-90	60-85	35-75	25-50	15-20	NP-5
	9-20	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	20-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
371:												
Tubspring-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-20	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	20-31	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	15-30	NP-5
	31-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
372:												
Strat-----------	0-9	Cobbly sandy loam	GM, SM	A-4	0-5	15-25	65-90	60-85	35-75	25-50	15-20	NP-5
	9-20	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	20-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
372:												
Tubspring-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-20	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	20-31	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	15-30	NP-5
	31-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
373:												
Strat-----------	0-18	Cobbly ashy sandy loam	GM, SM	A-4	0-5	15-25	65-90	60-85	35-75	25-50	15-20	NP-5
	18-25	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	25-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
373:												
Tubspring-------	0-12	Fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-35	Fine sandy loam, sandy loam, gravelly fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
DelRio----------	0-14	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	14-60	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
374:												
Strat-----------	0-8	Very cobbly sandy loam	SM	A-1	0-5	25-40	65-80	50-70	30-40	15-30	15-20	NP-5
	8-36	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	36-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
374:												
Tubspring-------	0-10	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	10-36	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	36-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
Nemire----------	0-10	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	10-40	Ashy sandy loam, ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-70	15-30	NP-5
	40-60	Stratified gravelly fine sand to fine sandy loam	ML, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	45-75	15-60	0-20	NP-5
375:												
Strat----------	0-18	Cobbly ashy sandy loam	GM, SM	A-4	0-5	15-25	65-90	60-85	35-75	25-50	15-20	NP-5
	18-25	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0-5	15-45	50-65	45-60	35-60	15-40	15-20	NP-5
	25-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
375:												
Tubspring-------	0-12	Fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-35	Fine sandy loam, sandy loam, gravelly fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
Skaha-----------	0-9	Gravelly fine sandy loam	GM, ML, SM	A-4	0-5	0-15	65-90	60-85	45-65	35-65	15-25	NP-5
	9-60	Very gravelly coarse sand, extremely gravelly coarse sand, extremely cobbly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0-5	0-55	20-60	20-50	10-30	0-10	0-15	NP-5
376:												
Stratford-------	0-7	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	7-18	Very fine sandy loam	ML, SM	A-4	0-3	0-10	90-100	85-95	80-90	40-60	15-20	NP-5
	18-22	Gravelly loam	SM	A-4	0-5	0-10	70-85	65-75	55-70	40-60	15-25	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-5	15-40	30-50	10-35	5-15	0-5	0-15	NP-5
377:												
Stratford-------	0-7	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	7-18	Very fine sandy loam	ML, SM	A-4	0-3	0-10	90-100	85-95	80-90	40-60	15-20	NP-5
	18-22	Gravelly loam	SM	A-4	0-5	0-10	70-85	65-75	55-70	40-60	15-25	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-5	15-40	30-50	10-35	5-15	0-5	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
378:												
Stratford-------	0-7	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	7-18	Very fine sandy loam	ML, SM	A-4	0-3	0-10	90-100	85-95	80-90	40-60	15-20	NP-5
	18-22	Gravelly loam	SM	A-4	0-5	0-10	70-85	65-75	55-70	40-60	15-25	NP-5
	22-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-5	15-40	30-50	10-35	5-15	0-5	0-15	NP-5
379:												
Stubblefield----	0-10	Stony loam	ML, SM	A-4	5-15	5-10	75-90	65-80	55-75	40-60	20-25	NP-5
	10-28	Very gravelly loam, very gravelly sandy loam, very cobbly fine sandy loam	GM, SM	A-2, A-4, A-1	0-15	15-30	45-70	35-60	25-50	15-40	15-25	NP-5
	28-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Very cobbly sandy loam, very gravelly fine sandy loam, gravelly fine sandy loam	GC-GM, GM, ML, SM	A-4, A-2	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
380:												
Supplee---------	0-9	Ashy very fine sandy loam	ML	A-4	0	0-5	95-100	85-95	70-85	50-65	15-30	NP-5
	9-18	Ashy very fine sandy loam, ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-5	85-95	75-90	65-85	45-65	15-30	NP-5
	18-27	Gravelly ashy very fine sandy loam, gravelly ashy fine sandy loam, ashy sandy loam	ML, SM	A-2, A-4	0	0-5	75-85	65-85	35-80	20-55	15-30	NP-5
	27-60	Extremely cobbly sand, extremely gravelly sand	GP	A-1	5-20	30-40	30-45	25-40	10-25	1-5	0-14	NP
381:												
Supplee---------	0-9	Ashy very fine sandy loam	ML	A-4	0	0-5	95-100	85-95	70-85	50-65	15-30	NP-5
	9-18	Ashy very fine sandy loam, ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-5	85-95	75-90	65-85	45-65	15-30	NP-5
	18-27	Gravelly ashy very fine sandy loam, gravelly ashy fine sandy loam, ashy sandy loam	ML, SM	A-2, A-4	0	0-5	75-85	65-85	35-80	20-55	15-30	NP-5
	27-60	Extremely cobbly sand, extremely gravelly sand	GP	A-1	5-20	30-40	30-45	25-40	10-25	1-5	0-14	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
382:												
Tagear----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-34	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-90	35-65	15-30	NP-5
	34-39	Cobbly sandy loam	SM	A-2	0-5	10-20	75-95	70-90	45-60	25-35	15-25	NP-5
	39-49	Very gravelly loamy sand, very gravelly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-15	45-60	40-55	20-35	5-20	15-25	NP-5
	49-52	Cemented loamy sand	GM, GP-GM, SM	A-1, A-2, A-4	0-5	5-30	35-65	30-60	15-45	10-40	10-20	NP-5
	52-60	Very gravelly loamy sand, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-45	45-60	40-55	20-50	5-35	15-25	NP-5
383:												
Tagear----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-34	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-90	35-65	15-30	NP-5
	34-39	Cobbly sandy loam	SM	A-2	0-5	10-20	75-95	70-90	45-60	25-35	15-25	NP-5
	39-49	Very gravelly loamy sand, very gravelly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-15	45-60	40-55	20-35	5-20	15-25	NP-5
	49-52	Cemented loamy sand	GM, GP-GM, SM	A-1, A-2, A-4	0-5	5-30	35-65	30-60	15-45	10-40	10-20	NP-5
	52-60	Very gravelly loamy sand, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-45	45-60	40-55	20-50	5-35	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
384:												
Tagear----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-34	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-90	35-65	15-30	NP-5
	34-39	Cobbly sandy loam	SM	A-2	0-5	10-20	75-95	70-90	45-60	25-35	15-25	NP-5
	39-49	Very gravelly loamy sand, very gravelly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-15	45-60	40-55	20-35	5-20	15-25	NP-5
	49-52	Cemented loamy sand	GM, GP-GM, SM	A-1, A-2, A-4	0-5	5-30	35-65	30-60	15-45	10-40	10-20	NP-5
	52-60	Very gravelly loamy sand, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-45	45-60	40-55	20-50	5-35	15-25	NP-5
385:												
Taunton---------	0-8	Fine sandy loam	SM	A-4	0	0	95-100	90-100	80-90	40-50	0-14	NP
	8-19	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	19-27	Gravelly fine sandy loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	27-37	Cemented material			---	---	---	---	---	---	---	---
	37-57	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	57-67	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
386:												
Taunton---------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-85	20-30	NP-5
	8-19	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	19-27	Gravelly silt loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	27-37	Cemented material			---	---	---	---	---	---	---	---
	37-57	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	57-67	Unweathered bedrock			---	---	---	---	---	---	---	---
387:												
Taunton---------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-85	20-30	NP-5
	8-19	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	19-27	Gravelly silt loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	27-37	Cemented material			---	---	---	---	---	---	---	---
	37-57	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	57-67	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
388:												
Taunton---------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-85	20-30	NP-5
	8-19	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	19-27	Gravelly silt loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	27-37	Cemented material			---	---	---	---	---	---	---	---
	37-57	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	57-67	Unweathered bedrock			---	---	---	---	---	---	---	---
Finley----------	0-8	Cobbly very fine sandy loam	SM	A-2, A-4	0-5	5-25	75-85	70-80	55-60	25-40	---	NP
	8-23	Very gravelly loam, very cobbly sandy loam, extremely cobbly fine sandy loam	GM, SM	A-1, A-2	0-2	35-55	40-70	25-60	20-40	10-30	---	NP
	23-60	Very cobbly loamy sand, extremely gravelly loamy sand, extremely cobbly loamy sand	GP, GP-GM	A-1	0-2	35-55	20-50	15-45	5-10	0-10	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
389:												
Taunton---------	0-9	Very fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	80-90	30-45	15-20	NP-5
	9-20	Very fine sandy loam, loam	ML	A-2, A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	20-29	Very fine sandy loam, loam	ML	A-2, A-4	0	0-10	95-100	90-100	80-95	50-65	15-25	NP-5
	29-33	Cemented material			---	---	---	---	---	---	---	---
	33-53	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
Scoon-----------	0-6	Loam	ML	A-4	0	0	95-100	90-100	70-100	60-80	15-25	NP-5
	6-10	Silt loam, loam	ML	A-4	0	0-5	90-100	85-100	65-90	55-75	15-25	NP-5
	10-13	Silt loam, very fine sandy loam, gravelly very fine sandy loam	GM, ML, SM	A-4	0	0-5	60-100	55-95	50-85	35-75	15-25	NP-5
	13-17	Cemented material			---	---	---	---	---	---	---	---
	17-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
390:												
Taunton---------	0-9	Very fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	80-90	30-45	15-20	NP-5
	9-20	Very fine sandy loam, loam	ML	A-2, A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	20-29	Very fine sandy loam, loam	ML	A-2, A-4	0	0-10	95-100	90-100	80-95	50-65	15-25	NP-5
	29-33	Cemented material			---	---	---	---	---	---	---	---
	33-53	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
390:												
Scoon----------	0-6	Loam	ML	A-4	0	0	95-100	90-100	70-100	60-80	15-25	NP-5
	6-10	Silt loam, loam	ML	A-4	0	0-5	90-100	85-100	65-90	55-75	15-25	NP-5
	10-13	Silt loam, very fine sandy loam, gravelly very fine sandy loam	GM, ML, SM	A-4	0	0-5	60-100	55-95	50-85	35-75	15-25	NP-5
	13-17	Cemented material			---	---	---	---	---	---	---	---
	17-37	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	37-41	Unweathered bedrock			---	---	---	---	---	---	---	---
391:												
Terlan----------	0-8	Silt loam	ML	A-4	0	0-5	95-100	95-100	95-100	80-90	20-25	NP-5
	8-15	Gravelly loam, gravelly silt loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-15	70-80	65-75	55-70	40-55	25-35	5-15
	15-18	Gravelly loam, gravelly silt loam	CL-ML, GC-GM, GC, SC	A-4, A-6	0	0-25	60-80	55-75	45-70	35-55	15-35	NP-15
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
392:												
Terlan----------	0-8	Silt loam	ML	A-4	0	0-5	95-100	95-100	95-100	80-90	20-25	NP-5
	8-15	Gravelly loam, gravelly silt loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-15	70-80	65-75	55-70	40-55	25-35	5-15
	15-18	Gravelly loam, gravelly silt loam	CL-ML, GC-GM, GC, SC	A-4, A-6	0	0-25	60-80	55-75	45-70	35-55	15-35	NP-15
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Selah-----------	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	16-23	Clay loam, silty clay loam, silt loam	CL	A-6	0	0-10	95-100	85-95	75-90	55-85	35-45	10-20
	23-31	Gravelly loam, gravelly silt loam, silt loam	CL-ML, ML, GC, GC-GM	A-6, A-4	0	0-25	60-90	55-85	45-75	35-65	15-35	NP-15
	31-35	Cemented material			---	---	---	---	---	---	---	---
	35-40	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	40-44	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
393:												
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-27	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	27-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
394:												
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-27	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	27-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
395:												
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-27	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	27-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
396:												
Timentwa, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	6-22	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	22-37	Gravelly fine sandy loam, gravelly loam, sandy loam	GM, ML, SM	A-2, A-4	0-5	5-15	70-95	60-90	40-70	25-55	15-25	NP-5
	37-50	Gravelly fine sandy loam, gravelly loam	GM, SM	A-2, A-4	0-5	5-15	70-90	60-85	40-70	25-50	15-25	NP-5
	50-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
396:												
Lickskillet-----	0-7	Very cobbly loam	GC-GM, GM, CL-ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	7-15	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-4, A-6	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-3	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	3-8	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	8-12	Unweathered bedrock			---	---	---	---	---	---	---	---
397:												
Timentwa, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	6-24	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	24-44	Gravelly fine sandy loam, gravelly loam, sandy loam	GM, ML, SM	A-2, A-4	0-5	5-15	70-95	60-90	40-70	25-55	15-25	NP-5
	44-57	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	57-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
397:												
Lickskillet-----	0-6	Very cobbly loam	GC-GM, GM, CL-ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	6-12	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-4, A-6, A-2	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	12-18	Very gravelly loam, very gravelly sandy loam, very cobbly loam	GC, GC-GM, SC, CL	A-6, A-4	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	18-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---
398:												
Timentwa--------	0-7	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	7-36	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	36-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-4, A-1, A-2	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	SM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
398:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
398:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-2, A-4, A-1	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
399:												
Timentwa--------	0-7	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	7-36	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	36-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-4, A-1, A-2	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
399:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
399:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
400:												
Timentwa--------	0-7	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	7-36	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	36-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-4, A-2	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
400:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
400:												
Siweeka, bedrock substratum-----	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-29	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	29-38	Cemented material			---	---	---	---	---	---	---	---
	38-48	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5
	48-52	Unweathered bedrock			---	---	---	---	---	---	---	---
401:												
Timentwa--------	0-7	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	7-36	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	36-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-4, A-2	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-4, A-2, A-1	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	SM	A-4, A-2	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
401:												
Siweeka---------	0-9	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	9-16	Ashy fine sandy loam, ashy loam, ashy sandy loam	SM	A-1, A-2, A-4	0-5	0-10	85-95	75-95	40-80	20-50	20-30	NP-5
	16-27	Gravelly ashy fine sandy loam, cobbly ashy sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-50	15-30	NP-5
	27-36	Cobbly fine sandy loam, very cobbly sandy loam, gravelly fine sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-5	40-50	50-75	40-70	35-60	15-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
401:												
Brazlan---------	0-5	Cobbly ashy fine sandy loam	SM	A-2, A-4	0-5	5-15	80-90	70-80	50-70	30-45	15-30	NP-5
	5-13	Very cobbly ashy loam, very gravelly ashy loam, very gravelly ashy sandy loam	SM	A-2, A-4	0-5	20-35	70-80	55-65	40-50	25-50	20-30	NP-5
	13-20	Very gravelly sandy loam, very gravelly loam	GM, GP-GM, SM, SP-SM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	15-20	NP-5
	20-25	Cemented gravelly coarse sandy loam	SP-SM, GP-GM, SM, GM	A-1, A-2, A-4	0-5	10-20	60-70	40-50	20-50	10-40	5-20	NP-5
	25-29	Unweathered bedrock			---	---	---	---	---	---	---	---
402:												
Timentwa--------	0-8	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	8-29	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	29-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-4, A-2	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-2, A-1, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	SM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
402:												
Siweeka---------	0-15	Ashy fine sandy loam	SM	A-4	0-5	0-5	90-95	85-95	60-80	35-50	15-30	NP-5
	15-21	Cobbly ashy sandy loam, gravelly ashy loam, gravelly ashy fine sandy loam	ML, SM	A-1, A-2, A-4	0-5	5-15	75-85	70-80	40-70	20-60	20-30	NP-5
	21-36	Cobbly sandy loam, very cobbly sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0-5	25-35	70-80	65-75	50-70	30-50	15-20	NP-5
	36-42	Cemented material			---	---	---	---	---	---	---	---
	42-60	Very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	40-50	55-65	45-55	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
402:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5
403:												
Timmerman-------	0-9	Coarse sandy loam	SM	A-4	0	0	100	100	70-80	40-50	0-15	NP-5
	9-20	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	20-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
404:												
Timmerman-------	0-9	Coarse sandy loam	SM	A-4	0	0	100	100	70-80	40-50	0-15	NP-5
	9-20	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	20-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-15	NP-5
405:												
Timmerman-------	0-9	Coarse sandy loam	SM	A-4	0	0	100	100	70-80	40-50	0-15	NP-5
	9-20	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	20-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-15	NP-5
406:												
Titchenal-------	0-10	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	10-20	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	20-57	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	57-60	Cemented material	---	---	---	---	---	---	---	---	---	---
407:												
Titchenal-------	0-10	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	10-20	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	20-57	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	57-60	Cemented material	---	---	---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
408:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
409:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
410:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	ML, CL-ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
411:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
412:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
413:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
414:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
415:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
415:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
416:												
Toler-----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Corbaley--------	0-4	Cobbly ashy fine sandy loam	ML	A-4	0-5	10-25	80-95	75-90	70-80	50-60	15-30	NP-5
	4-12	Very gravelly ashy fine sandy loam	GC-GM, GM	A-2, A-4	0	5-25	45-65	40-60	35-55	25-40	15-30	NP-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
417:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Corbaley--------	0-4	Cobbly ashy fine sandy loam	ML	A-4	0-5	10-25	80-95	75-90	70-80	50-60	15-30	NP-5
	4-12	Very gravelly ashy fine sandy loam	GC-GM, GM	A-2, A-4	0	5-25	45-65	40-60	35-55	25-40	15-30	NP-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
418:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Corbaley--------	0-4	Cobbly ashy fine sandy loam	ML	A-4	0-5	5-10	80-95	75-90	70-80	50-60	15-30	NP-5
	4-12	Very gravelly ashy fine sandy loam	GC-GM, GM	A-2, A-4	0	5-25	45-65	40-60	35-55	25-40	15-30	NP-10
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
419:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
420:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
420:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
421:												
Toler-----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
422:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
423:												
Toler----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
423:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Benwy-----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---
424:												
Toler-----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
424:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls, bedrock substratum-----	0-10	Silt loam	ML	A-4	0	0-5	90-100	85-100	75-95	70-90	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, silt loam	CL-ML, ML	A-4	0	5-10	70-85	60-80	55-70	50-60	20-30	NP-10
	20-32	Gravelly clay loam, gravelly silt loam, silt loam	GC-GM, SC, SC-SM	A-4, A-6	0	0-15	70-90	60-85	45-60	35-50	25-40	5-15
	32-52	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-40	5-15
	52-56	Unweathered bedrock			---	---	---	---	---	---	---	---
425:												
Toler-----------	0-10	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	15-30	NP-5
	10-14	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	14-26	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	26-36	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	36-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
425:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls, bedrock substratum-----	0-10	Silt loam	ML	A-4	0	0-5	90-100	85-100	75-95	70-90	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, silt loam	CL-ML, ML	A-4	0	5-10	70-85	60-80	55-70	50-60	20-30	NP-10
	20-32	Gravelly clay loam, gravelly silt loam, silt loam	GC-GM, SC, SC-SM	A-4, A-6	0	0-15	70-90	60-85	45-60	35-50	25-40	5-15
	32-52	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-40	5-15
	52-56	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
426:												
Toler----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-22	Silt loam	CL-ML, ML	A-4	0	0-10	90-100	85-100	80-90	70-85	20-35	NP-10
	22-30	Silt loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	85-95	80-90	75-85	65-85	25-40	5-15
	30-32	Very gravelly clay loam, gravelly clay loam, silt loam	CL, GC, GC-GM, SC	A-2, A-6, A-7	0	5-20	40-90	35-85	30-80	30-80	30-45	10-20
	32-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Kester----------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-70	15-30	NP-5
	10-25	Ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	65-85	40-60	15-30	NP-5
	25-32	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0	95-100	90-100	70-90	45-70	15-30	NP-5
	32-42	Unweathered bedrock			---	---	---	---	---	---	---	---
427:												
Torriorthents---	0-10	Gravelly fine sandy loam	SM	A-1, A-2	0-5	5-10	60-80	50-75	40-60	20-30	15-20	NP-5
	10-60	Very cobbly coarse sand, extremely cobbly sand, extremely gravelly loamy coarse sand	SP	A-1	0-5	35-55	50-70	20-65	5-10	0-5	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
428:												
Touhey----------	0-12	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	12-24	Gravelly ashy fine sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	24-38	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-25	NP-5
	38-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
428:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very cobbly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
429:												
Touhey----------	0-12	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	12-24	Gravelly ashy fine sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	24-38	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-25	NP-5
	38-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
429:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
430:												
Touhey----------	0-12	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	12-24	Gravelly ashy fine sandy loam, gravelly ashy sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	24-38	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-25	NP-5
	38-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
430:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
431:												
Touhey----------	0-15	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	15-31	Gravelly fine sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	31-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
432:												
Touhey----------	0-15	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	15-31	Gravelly fine sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	31-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5
433:												
Touhey----------	0-15	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	15-38	Gravelly fine sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	10-20	70-80	60-75	35-65	15-45	15-30	NP-5
	38-40	Cemented very gravelly sandy loam	SM, SP-SM	A-1, A-2	0-5	10-20	70-80	60-75	30-45	10-35	5-20	NP-5
	40-60	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	GM, SM	A-1	0-5	10-40	55-65	50-65	35-45	15-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
434:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	SC-SM, CL, GC, GC-GM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
435:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
436:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
437:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-4, A-2	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-2, A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---
Lickskillet-----	0-5	Very cobbly loam	GC-GM, GM, CL-ML, SC-SM	A-4	0-5	25-45	55-85	50-80	45-75	40-70	20-30	NP-10
	5-9	Very gravelly loam, very cobbly fine sandy loam, very cobbly loam	GC, GC-GM, ML, SC-SM	A-2, A-6, A-4	0	15-45	45-75	40-70	35-65	30-60	25-35	5-15
	9-14	Very gravelly loam, very gravelly sandy loam, very cobbly loam	CL, GC, GC-GM, SC	A-6, A-4	0	10-40	40-70	35-65	30-60	25-55	25-35	5-15
	14-18	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
437:												
Argabak---------	0-2	Very cobbly loam	CL-ML, GC-GM, SC-SM	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	2-10	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	10-14	Unweathered bedrock			---	---	---	---	---	---	---	---
438:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
438:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
439:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
439:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-4, A-1, A-2	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
440:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
440:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
441:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
441:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	SM, GC-GM, GM, ML	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
441: Stubblefield, extremely bouldery-------	0-9	Extremely bouldery fine sandy loam	GM, ML, SM	A-2, A-4	30-50	10-25	65-85	60-80	40-70	25-55	15-25	NP-5
	9-20	Gravelly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-2, A-4	0-10	10-40	50-80	45-75	35-65	25-55	20-25	NP-5
	20-34	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	34-40	Cemented material			---	---	---	---	---	---	---	---
	40-60	Extremely cobbly sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0-10	15-55	45-75	40-70	30-60	20-50	20-30	NP-10

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
442:												
Touhey, bedrock substratum-----	0-9	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-95	55-75	15-30	NP-5
	9-16	Cobbly ashy sandy loam, gravelly ashy sandy loam, gravelly ashy fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-30	NP-5
	16-21	Cobbly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-1, A-2, A-4	0-5	15-35	80-90	70-80	35-60	20-45	15-20	NP-5
	21-23	Cemented very gravelly sandy loam	GM	A-1, A-2	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	23-42	Very gravelly sandy loam, very cobbly sandy loam, cobbly sandy loam	SM	A-1	0-5	30-50	55-65	45-55	35-45	15-20	15-20	NP-5
	42-52	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
442:												
Stubblefield----	0-10	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-5	30-45	60-80	55-75	40-70	25-55	15-25	NP-5
	10-16	Very cobbly fine sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	16-30	Very cobbly sandy loam, very gravelly fine sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0-10	15-45	50-75	45-70	35-65	20-50	20-25	NP-5
	30-38	Cemented material			---	---	---	---	---	---	---	---
	38-60	Gravelly fine sandy loam, very gravelly fine sandy loam, very cobbly sandy loam	GC-GM, GM, ML, SM	A-2, A-4	0-10	10-45	50-80	45-75	35-65	25-55	20-30	NP-10
Tagear----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	95-100	75-95	50-70	15-30	NP-5
	13-34	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-100	60-90	35-65	15-30	NP-5
	34-39	Cobbly sandy loam	SM	A-2	0-5	10-20	75-95	70-90	45-60	25-35	15-25	NP-5
	39-49	Very gravelly loamy sand, very gravelly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-15	45-60	40-55	20-35	5-20	15-25	NP-5
	49-52	Cemented loamy sand	GM, GP-GM, SM	A-1, A-2, A-4	0-5	5-30	35-65	30-60	15-45	10-40	10-20	NP-5
	52-60	Very gravelly loamy sand, very cobbly sandy loam	GM, GP-GM, SM	A-1, A-2	0-5	5-45	45-60	40-55	20-50	5-35	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
443:												
Tubspring-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-20	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	20-31	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	15-30	NP-5
	31-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
444:												
Tubspring-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-20	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	20-31	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	15-30	NP-5
	31-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
445:												
Tubspring-------	0-9	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	9-14	Ashy fine sandy loam, gravelly ashy fine sandy loam, gravelly ashy sandy loam	SM, ML	A-2, A-4	0	0-10	75-100	70-100	50-80	30-60	15-30	NP-5
	14-18	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	0-15	NP-5
	18-60	Extremely gravelly coarse sand, very gravelly sand, very cobbly coarse sand	GP-GM, GW, SW-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP
446:												
Tubspring-------	0-12	Ashy fine sandy loam	ML, SM	A-4	0	0-10	95-100	90-100	70-85	40-60	15-30	NP-5
	12-20	Ashy fine sandy loam, ashy sandy loam, gravelly ashy fine sandy loam	ML, SM	A-4	0	0-10	70-100	65-95	55-85	30-60	15-30	NP-5
	20-31	Gravelly loamy sand, gravelly loamy coarse sand, cobbly loamy sand	SM, SP-SM	A-1, A-2	0	0-15	65-90	60-85	40-65	10-25	15-30	NP-5
	31-60	Very gravelly coarse sand, extremely gravelly coarse sand, very cobbly coarse sand	GP, GP-GM, GW, SP-SM	A-1	0-5	10-45	25-65	20-60	10-40	0-10	---	NP

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
446:												
DelRio----------	0-13	Ashy fine sandy loam	ML	A-4	0	0	100	90-100	75-90	50-75	15-30	NP-5
	13-45	Ashy fine sandy loam, ashy sandy loam, ashy very fine sandy loam	ML	A-4	0	0	100	90-100	70-90	50-75	15-30	NP-5
	45-60	Loamy fine sand, sandy loam, loamy sand	SM	A-2, A-4	0	0	100	90-100	50-70	15-40	15-20	NP-5
Strat----------	0-9	Cobbly sandy loam	GM, SM	A-4	0-5	15-25	65-90	60-85	35-75	25-50	15-20	NP-5
	9-20	Very cobbly sandy loam, very gravelly loam, very cobbly loam	GM, SM	A-1, A-2	0-5	15-45	65-85	45-65	40-65	15-45	15-20	NP-5
	20-60	Extremely gravelly coarse sand, extremely gravelly sand, extremely cobbly coarse sand	GW, SP	A-1	0-5	20-50	40-60	20-40	10-30	1-5	0-14	NP
447:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
448:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
449:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
450:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
451:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
451:												
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
452:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
453:												
Van Nostern-----	0-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	20-25	NP-10
	16-28	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	28-38	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	90-100	80-90	25-35	5-15
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
453:												
Camaspatch------	0-7	Very cobbly loam	GC, GC-GM	A-4, A-6	5-10	25-35	55-70	50-65	45-55	40-50	30-40	10-20
	7-10	Very gravelly clay loam, very gravelly silty clay loam, very cobbly clay loam	GC	A-2, A-6, A-7	5-10	30-45	45-60	35-50	30-45	25-40	40-50	20-30
	10-18	Very gravelly clay, extremely gravelly clay	GC	A-2	5-10	30-40	35-55	25-45	25-40	25-35	55-65	30-40
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
454:												
Vitrandic Argixerolls----	0-4	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-35	NP-5
	4-25	Ashy silt loam, ashy loam, ashy fine sandy loam	ML	A-4	0	0-5	95-100	90-100	75-100	60-90	20-30	NP-5
	25-31	Gravelly ashy silt loam, gravelly ashy loam, cobbly ashy silt loam	GM, ML, SM	A-4	0	5-25	70-85	65-80	50-80	45-75	20-35	NP-5
	31-37	Very cobbly loam, cobbly silt loam, gravelly loam	CL, GC, GC-GM, SC-SM	A-4, A-6	0-2	10-50	55-85	50-80	45-75	36-65	25-35	5-15
	37-57	Very gravelly clay loam, very gravelly clay, very cobbly clay loam	GC, SC	A-2, A-6, A-7	0-5	10-55	30-65	25-60	20-55	15-45	35-65	15-40
	57-67	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
454: Vitrandic Argixerolls, stony----------	0-4	Very stony ashy fine sandy loam	GM, ML, SM	A-2, A-4	15-30	15-40	60-85	55-80	40-70	25-55	15-30	NP-5
	4-11	Gravelly ashy fine sandy loam, very cobbly ashy fine sandy loam, cobbly ashy loam	GM, ML, SM	A-4	0-2	5-20	70-95	65-90	45-75	40-70	20-30	NP-5
	11-16	Very cobbly silt loam, very gravelly silt loam, very cobbly loam	CL-ML, GC, SC, SC-SM	A-4, A-6	0-2	15-45	55-85	50-80	40-70	35-65	25-35	5-15
	16-53	Very cobbly sandy clay loam, very cobbly loam, very gravelly clay loam	CL, GC, SC	A-2, A-6, A-7	0-3	15-50	50-85	45-80	35-65	25-60	30-50	10-25
	53-58	Very gravelly sandy clay loam, very cobbly loam, very gravelly clay loam	GC, SC	A-2, A-6, A-7	0-2	10-55	35-70	30-65	25-60	20-50	30-60	10-35
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
455:												
Warden----------	0-10	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-20	NP-5
	10-30	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	20-25	NP-5
	30-60	Stratified very fine sandy loam to silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	20-25	NP-5
456:												
Watco----------	0-6	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	6-22	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	22-42	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	80-95	70-90	40-80	15-30	NP-5
	42-58	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-2, A-4	5-15	5-10	80-90	65-85	50-70	20-45	15-20	NP-5
	58-60	Very gravelly sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-15	20-30	80-90	75-85	50-65	20-40	15-20	NP-5
457:												
Watco----------	0-4	Very bouldery ashy fine sandy loam	SM	A-2, A-4	5-15	5-10	80-90	70-80	50-70	30-45	15-30	NP-5
	4-13	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	5-10	85-95	80-90	60-75	35-55	15-30	NP-5
	13-47	Ashy fine sandy loam, ashy sandy loam, ashy coarse sandy loam	ML, SM	A-2, A-4	0	5-10	85-95	75-90	55-75	30-55	15-30	NP-5
	47-60	Extremely gravelly sandy loam, very gravelly loam	GM, GP-GM, SM	A-1, A-2	15-20	25-35	60-70	30-40	15-40	10-35	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
457:												
Dezellem--------	0-4	Very stony ashy fine sandy loam	SM	A-2, A-4	15-30	20-30	70-85	65-75	45-65	25-40	20-30	NP-5
	4-18	Gravelly ashy fine sandy loam, very stony ashy loam	ML, SM	A-2, A-4	5-10	10-20	75-85	70-80	50-75	30-60	20-30	NP-5
	18-24	Very gravelly sandy loam, very cobbly loam, very gravelly fine sandy loam	GM, SM	A-4, A-2	0-5	25-35	60-75	55-65	35-60	15-50	15-20	NP-5
	24-36	Very cobbly fine sandy loam, cobbly sandy loam, very gravelly sandy loam	GM, SM, SP-SM, SW-SM	A-1, A-2	0-5	25-35	70-85	45-75	30-50	10-30	15-20	NP-5
	36-60	Extremely gravelly sandy loam, extremely cobbly sandy loam, very gravelly sandy loam	GM, GP-GM, GW-GM, SM	A-1	10-15	35-60	35-60	30-55	20-45	10-30	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
457:												
Timentwa--------	0-7	Ashy fine sandy loam	ML	A-4	0	0-5	95-100	85-95	80-90	55-75	15-30	NP-5
	7-36	Ashy loam, ashy fine sandy loam, ashy sandy loam	ML	A-4	0	0-5	95-100	85-90	80-90	55-80	20-30	NP-5
	36-51	Gravelly fine sandy loam, very cobbly sandy loam, gravelly loam	SM	A-2, A-4	0-5	10-40	60-90	55-85	35-70	20-50	5-20	NP-5
	51-52	Cemented cobbly sandy loam	GM, SM	A-1, A-2, A-4	0-5	10-30	35-65	30-60	15-45	10-40	5-20	NP-5
	52-60	Cobbly sandy loam, gravelly loam, very cobbly sandy loam	GM	A-2, A-4	0-5	5-40	50-80	45-75	35-65	15-45	15-25	NP-5
458:												
Water-----------	---	---	---	---	---	---	---	---	---	---	---	---
459:												
Waterflat-------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	10-30	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	30-43	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0	90-100	85-100	65-90	45-70	20-30	NP-5
	43-60	Stratified coarse sand to silty clay loam	CL, CL-ML, ML, SM	A-1, A-2, A-4, A-6	0	0	80-100	75-100	45-100	10-95	15-40	NP-20

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
460:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
461:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
462:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
463:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
464:												
Wellsdam--------	0-6	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	6-18	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	18-38	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	38-54	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	54-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
Couleedam-------	0-4	Very stony sandy loam	GM, SM	A-1, A-2	10-25	10-30	60-90	55-85	35-60	20-35	15-25	NP-5
	4-9	Very gravelly sandy loam, very cobbly sandy loam	GM, SM	A-1, A-2	0-5	10-40	50-90	45-65	30-40	15-30	15-25	NP-5
	9-16	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0-10	10-35	40-70	35-65	20-30	10-25	15-25	NP-5
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
465:												
Wellsdam--------	0-6	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	6-18	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	18-38	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	38-54	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	54-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
Couleedam-------	0-4	Very stony sandy loam	GM, SM	A-1, A-2	10-25	10-30	60-90	55-85	35-60	20-35	15-25	NP-5
	4-9	Very gravelly sandy loam, very cobbly sandy loam	GM, SM	A-1, A-2	0-5	10-40	50-90	45-65	30-40	15-30	15-25	NP-5
	9-16	Very gravelly sandy loam, very cobbly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0-10	10-35	40-70	35-65	20-30	10-25	15-25	NP-5
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
466:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
467:												
Wellsdam--------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
468:												
Wellsdam---------	0-10	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	70-85	50-65	15-30	NP-5
	10-27	Ashy fine sandy loam, ashy very fine sandy loam, gravelly ashy sandy loam	ML	A-4	0	0	85-100	70-90	65-85	50-70	15-30	NP-5
	27-30	Cemented cobbly fine sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	5-20	NP-5
	30-60	Cobbly fine sandy loam, very cobbly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-10	20-30	80-90	75-85	50-70	20-45	15-20	NP-5
Peshastin-------	0-12	Fine sandy loam	ML	A-4	0	0-5	95-100	80-95	80-90	55-75	15-20	NP-5
	12-22	Very gravelly sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0-5	5-15	75-85	60-70	35-65	15-45	15-25	NP-5
	22-60	Extremely gravelly coarse sandy loam, extremely gravelly sandy loam	GM, GP-GM	A-1	0-5	10-25	35-50	30-40	20-30	10-20	15-20	NP-5
469:												
Whiteye---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-18	Silt loam, loam	CL-ML, ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-30	NP-10
	18-22	Cemented material			---	---	---	---	---	---	---	---
	22-27	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
470:												
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
471:												
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---
472:												
Willis----------	0-9	Silt loam	ML	A-4	0	0	100	100	90-100	75-85	15-20	NP-5
	9-17	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	95-100	85-95	20-25	NP-5
	17-30	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	95-100	80-90	20-25	NP-5
	30-34	Cemented material			---	---	---	---	---	---	---	---
	34-39	Stratified cemented material to silt loam	ML	A-4	0	0	100	75-100	60-90	50-85	15-25	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
473:												
Willock---------	0-8	Ashy fine sandy loam	ML, SM	A-4	0	0-10	90-100	85-95	65-80	45-60	15-30	NP-5
	8-23	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-10	80-100	75-95	65-90	50-75	20-30	NP-5
	23-34	Cobbly loam, gravelly loam	GM, ML, SM	A-4	0-10	10-40	65-95	60-90	55-85	40-70	20-25	NP-5
	34-43	Sandy loam, fine sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-65	25-35	15-25	NP-5
	43-60	Sandy loam, loamy sand	SM	A-1, A-2	0-10	0-15	80-95	75-90	35-55	15-35	15-25	NP-5
474:												
Willock---------	0-8	Ashy fine sandy loam	SM, ML	A-4	0	0-10	90-100	85-95	65-80	45-60	15-30	NP-5
	8-23	Ashy loam, ashy fine sandy loam	ML	A-4	0	0-10	80-100	75-95	65-90	50-75	20-30	NP-5
	23-34	Cobbly loam, gravelly loam	GM, ML, SM	A-4	0-10	10-40	65-95	60-90	55-85	40-70	20-25	NP-5
	34-43	Sandy loam, fine sandy loam	SM	A-4, A-2	0-10	0-15	80-95	75-90	45-65	25-35	15-25	NP-5
	43-60	Sandy loam, loamy sand	SM	A-1, A-2	0-10	0-15	80-95	75-90	35-55	15-35	15-25	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
475:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Willock, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	6-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-41	Cobbly sandy loam, gravelly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	0-5	10-40	70-80	60-70	36-65	15-45	15-25	NP-5
	41-55	Weathered bedrock			---	---	---	---	---	---	---	---
	55-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
476:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Willock, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	6-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-41	Cobbly sandy loam, gravelly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	0-5	10-40	70-80	60-70	36-65	15-45	15-25	NP-5
	41-55	Weathered bedrock			---	---	---	---	---	---	---	---
	55-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
477:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Willock, bedrock substratum-----	0-6	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	6-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-41	Cobbly sandy loam, gravelly fine sandy loam, very cobbly sandy loam	SM	A-2, A-4	0-5	10-40	70-80	60-70	36-65	15-45	15-25	NP-5
	41-55	Weathered bedrock			---	---	---	---	---	---	---	---
	55-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
478:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
479:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-2, A-4	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-2, A-4	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-2, A-1	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
480:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Conconully, bedrock substratum-----	0-6	Ashy sandy loam	SM	A-4, A-2	0	0-10	90-100	85-95	50-70	25-45	15-30	NP-5
	6-12	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4, A-2	0	0-10	80-100	75-95	55-85	25-55	15-30	NP-5
	12-25	Sandy loam, fine sandy loam, coarse sandy loam	SM	A-2, A-4	0-10	0-15	80-95	75-90	45-75	25-50	15-25	NP-5
	25-35	Gravelly sandy loam, cobbly sandy loam, gravelly coarse sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	35-50	Gravelly sandy loam, gravelly coarse sandy loam, cobbly sandy loam	GM, SM	A-1, A-2	0-15	0-40	60-85	55-80	30-55	15-30	15-25	NP-5
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
481:												
Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Watco-----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	5-18	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	18-42	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	80-95	70-90	40-80	15-30	NP-5
	42-58	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-2, A-4	5-15	5-10	80-90	65-85	50-70	20-45	15-20	NP-5
	58-60	Very gravelly sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-15	20-30	80-90	75-85	50-65	20-40	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
482: Willock, cemented substratum-----	0-10	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	10-20	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	20-30	Ashy fine sandy loam	ML	A-4	0	5-10	90-95	85-90	75-85	55-75	15-30	NP-5
	30-42	Gravelly fine sandy loam, cobbly fine sandy loam	SM	A-2, A-4	0-5	10-20	70-80	60-70	40-65	15-45	15-25	NP-5
	42-46	Cemented gravelly fine sandy loam	GM	A-1	0-5	20-30	50-60	40-50	30-45	10-35	5-20	NP-5
	46-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0-5	30-50	55-65	45-60	35-50	15-25	15-25	NP-5
Watco-----------	0-5	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	5-18	Ashy fine sandy loam	ML	A-4	0	0	95-100	85-95	80-90	60-80	15-30	NP-5
	18-42	Ashy sandy loam, ashy fine sandy loam	ML, SM	A-4	0	0	95-100	80-95	70-90	40-80	15-30	NP-5
	42-58	Very gravelly sandy loam, gravelly sandy loam, gravelly fine sandy loam	SM	A-2, A-4	5-15	5-10	80-90	65-85	50-70	20-45	15-20	NP-5
	58-60	Very gravelly sandy loam, very cobbly sandy loam	SM	A-2, A-4	5-15	20-30	80-90	75-85	50-65	20-40	15-20	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
483:												
Winblow---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-16	Ashy fine sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	45-65	15-30	NP-5
	16-22	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-70	20-30	NP-5
	22-28	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-65	15-30	NP-5
	28-30	Ashy silt loam, ashy loam	ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-35	NP-5
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
484:												
Winblow---------	0-7	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	7-16	Ashy fine sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	45-65	15-30	NP-5
	16-22	Ashy fine sandy loam, ashy silt loam, ashy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-70	20-30	NP-5
	22-28	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-65	15-30	NP-5
	28-30	Ashy silt loam, ashy loam	ML	A-4	0	0-10	80-100	75-100	70-95	60-90	20-35	NP-5
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
485:												
Winblow---------	0-6	Ashy fine sandy loam	ML	A-4	0	0	95-100	90-100	75-90	50-65	15-30	NP-5
	6-10	Ashy fine sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	45-65	15-30	NP-5
	10-39	Ashy fine sandy loam, ashy sandy loam	ML, SM	A-4	0	0-10	80-100	75-100	60-90	40-65	15-30	NP-5
	39-49	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
485:												
Argabak---------	0-4	Extremely cobbly loam	GC-GM	A-1, A-2, A-4	0	50-65	40-50	35-45	20-45	20-40	20-30	5-10
	4-7	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	7-11	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-6	Very cobbly fine sandy loam	GM, ML, SM	A-2, A-4	0-2	30-45	60-85	55-80	35-65	25-55	20-25	NP-5
	6-17	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
486:												
Xerofluvents----	0-6	Extremely cobbly loamy sand	GM, GP-GM	A-1, A-2	0-10	40-55	30-55	25-45	15-35	5-15	0-15	NP-5
	6-60	Extremely cobbly sand, very cobbly sand	GP	A-1	0-10	30-65	20-35	15-25	10-20	0-5	0-15	NP-5
Beverly---------	0-5	Cobbly fine sandy loam	SM	A-4	0	20-30	85-95	80-90	70-85	35-50	15-20	NP-5
	5-20	Gravelly fine sandy loam, very gravelly sandy loam, gravelly loamy sand	GM, GP-GM, SM	A-1, A-2	0	0-20	40-80	30-70	25-60	10-35	15-20	NP-5
	20-60	Extremely gravelly sand, extremely gravelly loamy coarse sand, extremely gravelly loamy sand	GP, GP-GM	A-1	0	5-30	20-35	10-25	5-20	0-5	0-15	NP-5

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
487:												
Zeemal----------	0-8	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	60-85	40-55	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy loam, ashy silt loam	ML, SM	A-4	0	0	95-100	95-100	60-100	40-90	20-30	NP-5
	12-17	Cemented sandy loam	ML, SM	A-4	0	0	95-100	90-100	60-90	40-70	5-25	NP-5
	17-33	Silt loam, loamy fine sand	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	65-90	20-30	NP-15
	33-60	Silt loam, silty clay loam	CL, CL-ML	A-6	0	0	95-100	95-100	85-100	65-95	25-45	5-20
488:												
Zeemal----------	0-8	Ashy fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	60-85	40-55	15-30	NP-5
	8-12	Ashy fine sandy loam, ashy loam, ashy silt loam	ML, SM	A-4	0	0	95-100	95-100	60-100	40-90	20-30	NP-5
	12-17	Cemented sandy loam	ML, SM	A-4	0	0	95-100	90-100	60-90	40-70	5-25	NP-5
	17-33	Silt loam, loamy fine sand	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-100	65-90	20-30	NP-15
	33-60	Silt loam, silty clay loam	CL, CL-ML	A-6	0	0	95-100	95-100	85-100	65-95	25-45	5-20
489:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
490:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL-ML, CL	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
491:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
492:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
493:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
493:												
Argabak---------	0-5	Very cobbly loam	GC-GM, SC-SM, CL-ML	A-2, A-4	0	30-45	50-75	45-70	35-65	30-60	20-30	5-10
	5-9	Very cobbly loam, very gravelly loam, very gravelly clay loam	CL, GC, GC-GM, SC-SM	A-2, A-6, A-7	0	10-55	40-70	35-65	35-65	30-60	25-45	5-20
	9-13	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
494:												
Zen-------------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
494:												
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
495:												
Zen-------------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
496:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Benwy-----------	0-6	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	6-12	Silt loam	ML	A-4	0	0	95-100	90-100	80-90	65-85	20-25	NP-5
	12-29	Silt loam, loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-90	65-80	20-30	NP-10
	29-44	Clay loam, gravelly clay loam, gravelly loam	CL	A-6, A-7	0	0-10	70-95	65-90	55-80	50-70	35-45	15-20
	44-47	Cemented material			---	---	---	---	---	---	---	---
	47-57	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
497:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls, bedrock substratum-----	0-10	Silt loam	ML	A-4	0	0-5	90-100	85-100	75-95	70-90	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, silt loam	CL-ML, ML	A-4	0	5-10	70-85	60-80	55-70	50-60	20-30	NP-10
	20-32	Gravelly clay loam, gravelly silt loam, silt loam	GC-GM, SC, SC-SM	A-4, A-6	0	0-15	70-90	60-85	45-60	35-50	25-40	5-15
	32-52	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-40	5-15
	52-56	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
498:												
Zen----------	0-15	Silt loam	ML	A-4	0	0	95-100	90-100	80-100	65-90	20-25	NP-5
	15-27	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	80-100	65-90	25-35	5-15
	27-36	Loam, gravelly loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-10	75-100	70-95	60-90	55-85	25-45	5-20
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Horseflat-------	0-8	Very cobbly loam	GM, ML	A-4	0-5	25-45	55-85	50-80	40-70	35-65	20-25	NP-5
	8-13	Very gravelly loam, very cobbly loam	CL-ML, GC-GM, GM, SM	A-2, A-4	0-10	15-50	45-80	40-70	35-60	30-55	20-30	5-10
	13-16	Extremely cobbly loam, extremely cobbly clay loam, extremely gravelly clay loam	GC, GP-GC	A-1, A-2	0-5	30-55	25-45	15-35	10-35	10-30	30-45	10-20
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls, bedrock substratum-----	0-10	Silt loam	ML	A-4	0	0-5	90-100	85-100	75-95	70-90	20-25	NP-5
	10-20	Gravelly clay loam, gravelly silt loam, silt loam	CL-ML, ML	A-4	0	5-10	70-85	60-80	55-70	50-60	20-30	NP-10
	20-32	Gravelly clay loam, gravelly silt loam, silt loam	GC-GM, SC, SC-SM	A-4, A-6	0	0-15	70-90	60-85	45-60	35-50	25-40	5-15
	32-52	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-40	5-15
	52-56	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 6.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
499:												
Zen	0-13	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	13-24	Silt loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	65-90	25-35	5-15
	24-28	Silt loam, clay loam, gravelly loam	SC, SC-SM, CL	A-4, A-6	0	0-10	70-100	65-95	55-85	40-75	25-35	5-15
	28-38	Unweathered bedrock			---	---	---	---	---	---	---	---
Lickskillet	0-4	Very cobbly loam	GC-GM, SC-SM	A-2, A-4	0-10	20-50	50-75	45-70	40-65	30-50	25-30	5-10
	4-15	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC, GM	A-6, A-7, A-2	0-10	5-50	40-65	30-50	25-50	20-40	35-45	10-20
	15-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Ralls	0-13	Silt loam	CL-ML, ML	A-4	0	0-5	85-100	75-95	70-90	60-85	20-30	NP-10
	13-44	Gravelly clay loam, gravelly silt loam, silt loam	CL	A-6	0	5-10	70-85	60-80	55-70	50-60	30-40	10-20
	44-60	Very gravelly silt loam, gravelly clay loam, gravelly silt loam	GC, GC-GM	A-1, A-2	0	0-25	40-60	35-55	25-40	20-35	25-35	5-15
500:												
Pits	---	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
1:												
Aarup----------	0-9	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			
2:												
Aarup----------	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			
3:												
Aarup----------	0-9	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			
Aarup, eroded---------	0-6	4-11	1.10-1.35	0.6-6	0.14-0.21	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	6-20	---	---	0.0015-0.06	---	---	---	---	---			
	20-30	---	---	---	---	---	---	---	---			
4:												
Achelake----------	0-5	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	5	2	134
	5-20	4-13	1.10-1.45	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-60	3-13	1.10-1.50	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
5:												
Aeneas----------	0-10	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	10-24	5-10	1.20-1.40	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.32	.37			
	24-30	2-5	1.30-1.45	6-20	0.08-0.10	0.0-2.9	0.0-0.5	.10	.15			
	30-60	0-2	1.40-1.50	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.10	.15			
6:												
Alecanyon----------	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
7:												
Alecanyon	0-9	3-12	1.35-1.60	6-20	0.04-0.07	0.0-2.9	1.0-2.0	.10	.28	2	3	86
	9-12	2-10	1.35-1.60	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37			
	12-20	1-4	1.35-1.60	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.20			
	20-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.20			
8:												
Alecanyon	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			
Cachebutte	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
9:												
Alecanyon	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			
Cachebutte	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
10:												
Alecanyon	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			
Cachebutte	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
Nemire	0-24	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	24-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
11:												
Alsash----------	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-11	6-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.40-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	28-60	4-8	1.40-1.65	0.2-0.6	0.03-0.12	0.0-2.9	0.0-0.5	.28	.43			
12:												
Alsash----------	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-11	6-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.40-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	28-60	4-8	1.40-1.65	0.2-0.6	0.03-0.12	0.0-2.9	0.0-0.5	.28	.43			
Slusser, indurated substratum----------	0-6	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	6-11	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.30-1.60	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	28-41	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-45	---	---	0.0015-0.06	---	---	---	---	---			
	45-50	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	50-60	---	---	---	---	---	---	---	---			
13:												
Alsash----------	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-11	6-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.40-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	28-60	4-8	1.40-1.65	0.2-0.6	0.03-0.12	0.0-2.9	0.0-0.5	.28	.43			
Slusser, indurated substratum----------	0-6	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	6-11	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.30-1.60	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	28-41	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-45	---	---	0.0015-0.06	---	---	---	---	---			
	45-50	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	50-60	---	---	---	---	---	---	---	---			
14:												
Alstown----------	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
15:												
Alstown----------	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
16:												
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Cheviot	0-10	8-18	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.43	5	7	38
	10-32	8-18	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.43			
	32-60	8-18	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49			
17:												
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Renslow, cemented substratum	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-18	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	18-49	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	49-60	---	---	0.0015-0.06	---	---	---	---	---			
18:												
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Renslow, cemented substratum	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-18	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	18-49	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	49-60	---	---	0.0015-0.06	---	---	---	---	---			
19:												
Aquolls	0-28	10-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.49	.49	5	5	56
	28-37	5-20	1.30-1.40	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.49	.49			
	37-49	5-20	1.30-1.45	0.6-2	0.12-0.21	0.0-2.9	1.0-2.0	.49	.49			
	49-60	10-35	1.35-1.55	0.2-0.6	0.12-0.21	3.0-5.9	0.0-0.5	.28	.43			
20:												
Aquolls	0-28	10-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	2.0-3.0	.49	.49	5	5	56
	28-37	5-20	1.30-1.40	0.6-2	0.13-0.21	0.0-2.9	1.0-2.0	.49	.49			
	37-49	5-20	1.30-1.45	0.6-2	0.12-0.21	0.0-2.9	1.0-2.0	.49	.49			
	49-60	10-35	1.35-1.55	0.2-0.6	0.12-0.21	3.0-5.9	0.0-0.5	.28	.43			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
20:												
Halaquepts, cemented substratum	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	5-20	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
21:												
Argabak	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
22:												
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Badge	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
23:												
Argabak	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
Badge	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
24:												
Argabak	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
24:												
Haploxerolls, wet-----	0-16	3-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	16-25	5-20	1.10-1.55	0.6-6	0.11-0.22	0.0-2.9	1.0-2.0	.28	.28			
	25-41	2-20	1.20-1.60	2-20	0.04-0.16	0.0-2.9	0.0-1.0	.28	.28			
	41-60	5-18	1.10-1.60	2-6	0.06-0.17	0.0-2.9	0.0-1.0	.32	.32			
Siweeka, bedrock substratum-----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
25:												
Argabak---------------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Horseflat-------------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
26:												
Argabak---------------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Horseflat-------------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Toler-----------------	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
27:												
Argabak---------------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
27:												
Horseflat----------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Zen----------	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
28:												
Argabak----------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Morrow----------	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
29:												
Argabak----------	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
Nemire, moist---------	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	10-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
Siweeka, bedrock substratum----------	0-13	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	13-27	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	27-39	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	39-43	---	---	0.0015-0.06	---	---	---	---	---			
	43-47	---	---	---	---	---	---	---	---			
30:												
Argabak----------	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
31:												
Argabak----------	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
Tagear, bedrock substratum----------	0-7	4-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	7-19	3-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.49			
	19-31	3-11	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.49			
	31-44	5-12	1.20-1.45	2-6	0.13-0.22	0.0-2.9	0.0-0.5	.43	.49			
	44-58	2-10	1.65-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	58-68	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
32:												
Argabak----------	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			
Timentwa, bedrock substratum----------	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.37	.43	3	2	134
	6-22	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	22-37	5-12	1.15-1.40	2-6	0.10-0.16	0.0-2.9	0.5-1.0	.28	.37			
	37-50	5-12	1.15-1.40	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.28	.37			
	50-52	2-10	1.65-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
33:												
Argabak----------	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
Timentwa, bedrock substratum----------	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.37	.43	3	2	134
	6-24	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	24-50	5-12	1.15-1.40	2-6	0.10-0.16	0.0-2.9	0.5-1.0	.28	.37			
	50-52	2-10	1.65-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
34:												
Argabak	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
Winblow	0-6	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	6-10	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.43	.43			
	10-39	3-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.5-1.0	.37	.43			
	39-49	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
35:												
Badge	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
36:												
Badge	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
37:												
Badge	0-9	10-20	1.20-1.35	0.6-2	0.13-0.17	0.0-2.9	1.0-3.0	.24	.37	5	6	48
	9-16	10-20	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.15	.37			
	16-33	24-35	1.25-1.45	0.2-0.6	0.09-0.12	0.0-2.9	0.0-1.0	.20	.37			
	33-60	15-25	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-1.0	.10	.43			
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
38:												
Badge	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
Dougville, cemented substratum	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	12-22	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	22-38	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	38-46	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	46-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
39:												
Badge	0-6	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	6-24	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	24-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
Stemilt	0-10	8-15	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-2.0	.28	.32	5	5	56
	10-20	15-27	1.25-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.32			
	20-38	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
	38-60	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
40:												
Badge	0-6	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	6-24	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	24-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
Stemilt	0-10	8-15	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-2.0	.28	.32	5	5	56
	10-20	15-27	1.25-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.32			
	20-38	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
	38-60	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
41:												
Bagdad	0-10	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	10-14	7-14	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	14-24	10-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	24-40	10-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	40-60	7-16	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
42:												
Bagdad	0-8	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	8-13	7-14	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-42	10-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	42-58	7-16	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.43			
43:												
Bagdad	0-8	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	8-13	7-14	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-42	10-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	42-58	7-16	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.43			
44:												
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
45:												
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
Lickskillet	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.17	.32	1	7	38
	4-15	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32			
	15-19	---	---	---	---	---	---	---	---			
Zen	0-13	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	13-24	22-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	24-28	22-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	28-38	---	---	---	---	---	---	---	---			
46:												
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
Roloff	0-11	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	11-17	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-29	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	29-33	---	---	---	---	---	---	---	---			
47:												
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
Touhey	0-15	4-10	1.10-1.50	0.6-2	0.16-0.23	0.0-2.9	1.0-2.0	.55	.55	3	2	134
	15-27	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	27-38	6-12	1.50-1.80	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
	38-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
48:												
Beca	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	8-23	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	23-31	10-18	1.30-1.55	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.43	.49			
	31-38	12-18	1.30-1.55	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.28	.49			
	38-42	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
49:												
Beca	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	8-23	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	23-31	10-18	1.30-1.55	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.43	.49			
	31-38	12-18	1.30-1.55	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.28	.49			
	38-42	---	---	---	---	---	---	---	---			
50:												
Beca	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	8-23	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	23-31	10-18	1.30-1.55	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.43	.49			
	31-38	12-18	1.30-1.55	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.28	.49			
	38-42	---	---	---	---	---	---	---	---			
51:												
Beca	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	8-23	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	23-31	10-18	1.30-1.55	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.43	.49			
	31-38	12-18	1.30-1.55	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.28	.49			
	38-42	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
52:												
Beca	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	8-23	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	23-31	10-18	1.30-1.55	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.43	.49			
	31-38	12-18	1.30-1.55	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.28	.49			
	38-42	---	---	---	---	---	---	---	---			
Dougville, cemented substratum	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.49	.49			
	36-58	15-20	1.25-1.40	2-6	0.09-0.10	0.0-2.9	0.5-1.0	.32	.37			
	58-60	15-30	1.20-1.40	0.2-0.6	---	3.0-5.9	0.0-0.5	.43	.43			
Slickear	0-10	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	3	2	134
	10-22	6-14	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	22-46	18-28	1.45-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	46-50	---	---	0.0015-0.06	---	---	---	---	---			
	50-55	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	55-59	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
53:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
54:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
55:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
56:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
57:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
Selah	0-16	10-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	16-23	24-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	23-31	5-24	1.30-1.55	0.2-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.37			
	31-35	---	---	0.0015-0.06	---	---	---	---	---			
	35-40	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	40-44	---	---	---	---	---	---	---	---			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
58:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
Selah	0-16	10-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	16-23	24-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	23-31	5-24	1.30-1.55	0.2-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.37			
	31-35	---	---	0.0015-0.06	---	---	---	---	---			
	35-40	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	40-44	---	---	---	---	---	---	---	---			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
59:												
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
Selah	0-16	10-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	16-23	24-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	23-31	5-24	1.30-1.55	0.2-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.37			
	31-35	---	---	0.0015-0.06	---	---	---	---	---			
	35-40	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	40-44	---	---	---	---	---	---	---	---			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
60:												
Beverly	0-5	5-10	1.20-1.40	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.20	.28	3	4	86
	5-20	4-8	1.35-1.55	2-6	0.07-0.12	0.0-2.9	0.0-0.5	.15	.32			
	20-60	0-5	1.40-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.02	.20			
61:												
Brays	0-10	4-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	2	2	134
	10-27	4-12	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.37			
	27-35	3-13	1.20-1.30	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37			
	35-45	---	---	---	---	0.0-2.9	0.0-0.5	---	---			
62:												
Brays	0-10	4-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	2	2	134
	10-27	4-12	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.37			
	27-35	3-13	1.20-1.30	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37			
	35-45	---	---	---	---	0.0-2.9	0.0-0.5	---	---			
Entiat	0-6	6-10	1.15-1.35	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	2	4	86
	6-11	8-14	1.25-1.50	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.17	.32			
	11-17	8-14	1.25-1.50	2-6	0.07-0.08	0.0-2.9	0.5-1.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
63:												
Brays	0-10	4-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	2	2	134
	10-27	4-12	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.37			
	27-35	3-13	1.20-1.30	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.10	.37			
	35-45	---	---	---	---	0.0-2.9	0.0-0.5	---	---			
Entiat	0-6	6-10	1.15-1.35	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	2	4	86
	6-11	8-14	1.25-1.50	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.17	.32			
	11-17	8-14	1.25-1.50	2-6	0.07-0.08	0.0-2.9	0.5-1.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
64:												
Broadax	0-8	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-16	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	16-26	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	26-42	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	42-54	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.55	.55			
65:												
Broadax	0-8	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-16	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	16-26	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	26-42	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	42-54	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.55	.55			
66:												
Broadax	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
67:												
Broadax	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
68:												
Broadax, bedrock substratum----------	0-9	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-13	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-31	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	31-47	6-18	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	47-57	---	---	---	---	---	---	---	---			
Morrow----------	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
Spofford----------	0-9	8-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-21	20-32	1.40-1.60	0.06-0.2	0.09-0.11	3.0-5.9	0.5-1.0	.43	.43			
	21-44	12-20	1.25-1.50	0.6-2	0.09-0.11	0.0-2.9	0.0-0.5	.55	.55			
	44-53	---	---	0.0015-0.06	---	---	---	---	---			
	53-58	5-16	1.25-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
	58-62	---	---	---	---	---	---	---	---			
69:												
Broadax, bedrock substratum----------	0-9	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-13	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	13-31	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	31-47	6-18	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	47-57	---	---	---	---	---	---	---	---			
Morrow----------	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
Spofford----------	0-9	8-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-21	20-32	1.40-1.60	0.06-0.2	0.09-0.11	3.0-5.9	0.5-1.0	.43	.43			
	21-44	12-20	1.25-1.50	0.6-2	0.09-0.11	0.0-2.9	0.0-0.5	.55	.55			
	44-53	---	---	0.0015-0.06	---	---	---	---	---			
	53-58	5-16	1.25-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
	58-62	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
70:												
Broadax, cemented substratum----------	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
Titchenal----------	0-10	7-15	1.25-1.45	0.6-2	0.18-0.23	0.0-2.9	2.0-3.0	.43	.43	4	5	56
	10-20	7-15	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	1.0-2.0	.49	.49			
	20-57	10-18	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	0.5-1.0	.49	.49			
	57-60	---	---	0.0015-0.06	---	---	---	---	---			
71:												
Burbank----------	0-6	0-5	1.40-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.24	.28	4	2	134
	6-20	0-5	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	20-60	0-2	1.45-1.60	20-20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
72:												
Burbank----------	0-6	0-5	1.40-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.24	.28	4	2	134
	6-20	0-5	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	20-60	0-2	1.45-1.60	20-20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
73:												
Burch----------	0-10	5-10	1.25-1.40	2-6	0.13-0.16	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	10-38	10-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.49			
	38-60	8-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.49	.49			
74:												
Burch----------	0-10	10-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	10-30	10-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.49			
	30-60	8-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.49	.49			
75:												
Burch----------	0-10	10-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	10-30	10-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.49			
	30-60	8-18	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.49	.49			
76:												
Cachebutte----------	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
77:												
Cachebutte----------	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
Alecanyon----------	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			
Haploxerolls, wet-----	0-16	3-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	16-25	5-20	1.10-1.55	0.6-6	0.11-0.22	0.0-2.9	1.0-2.0	.28	.28			
	25-41	2-20	1.20-1.60	2-20	0.04-0.16	0.0-2.9	0.0-1.0	.28	.28			
	41-60	5-18	1.10-1.60	2-6	0.06-0.17	0.0-2.9	0.0-1.0	.32	.32			
78:												
Cachebutte----------	0-6	3-12	1.10-1.35	2-6	0.14-0.20	0.0-2.9	2.0-3.0	.32	.32	3	2	134
	6-22	2-10	1.10-1.35	2-6	0.15-0.24	0.0-2.9	1.0-2.0	.32	.32			
	22-28	2-8	1.30-1.55	2-6	0.10-0.18	0.0-2.9	0.5-1.0	.24	.32			
	28-34	1-5	1.30-1.55	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.32			
	34-60	1-5	1.40-1.60	20-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
Nemire----------	0-24	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	24-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
Alecanyon----------	0-12	3-12	1.35-1.50	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37	2	4	86
	12-31	1-4	1.35-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.10	.15			
	31-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.10			
79:												
Cashmere----------	0-11	5-10	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-24	5-12	1.30-1.50	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
	24-60	5-10	1.40-1.55	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
80:												
Cashmere----------	0-11	5-10	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-24	5-12	1.30-1.50	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
	24-60	5-10	1.40-1.55	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
81:												
Cashmere----------	0-11	5-10	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-24	5-12	1.30-1.50	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
	24-60	5-10	1.40-1.55	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
82:												
Cashmere----------	0-10	5-10	1.25-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	4	3	86
	10-44	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-52	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	52-60	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.37			
83:												
Cashmere----------	0-10	5-10	1.25-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	4	3	86
	10-44	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-52	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	52-60	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.37			
84:												
Cashmere----------	0-10	5-10	1.25-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	4	3	86
	10-44	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-52	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	52-60	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.37			
85:												
Cashmere, cemented substratum----------	0-10	5-10	1.25-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	4	3	86
	10-44	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-52	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	52-60	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.37			
Willis----------	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			
86:												
Cashmere, cemented substratum----------	0-10	5-10	1.25-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.37	.37	4	3	86
	10-44	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	44-52	5-12	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	52-60	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.37			
Willis----------	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
87:												
Cashmont	0-10	6-12	1.20-1.40	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	5	4	86
	10-36	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28			
	36-60	6-12	1.35-1.50	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
88:												
Cashmont	0-10	6-12	1.20-1.40	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.15	.28	5	4	86
	10-36	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28			
	36-60	6-12	1.35-1.50	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
89:												
Cashmont	0-10	6-12	1.20-1.40	2-6	0.11-0.13	0.0-2.9	1.0-2.0	.20	.24	5	3	86
	10-24	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28			
	24-60	6-12	1.35-1.50	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
90:												
Cashmont	0-10	6-12	1.20-1.40	2-6	0.11-0.13	0.0-2.9	1.0-2.0	.20	.24	5	3	86
	10-24	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28			
	24-60	6-12	1.35-1.50	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
91:												
Cashmont	0-10	6-12	1.20-1.40	2-6	0.11-0.13	0.0-2.9	1.0-2.0	.20	.24	5	3	86
	10-24	6-12	1.35-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.15	.28			
	24-60	6-12	1.35-1.50	2-6	0.09-0.11	0.0-2.9	0.0-0.5	.10	.32			
92:												
Chelan, cemented substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-42	3-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.37	.37			
	42-46	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	46-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
93:												
Chelan, cemented substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-42	3-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.37	.37			
	42-46	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	46-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
94:												
Chelan, cemented substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-42	3-11	1.10-1.25	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.37	.37			
	42-46	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	46-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
95:												
Chelan, bedrock substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-25	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.37	.37			
	25-50	3-11	1.10-1.25	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.32	.37			
	50-60	---	---	---	---	---	---	---	---			
96:												
Chelan, gravelly substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-25	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.37	.37			
	25-46	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.0-0.5	.43	.43			
	46-60	0-5	1.30-1.40	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.17			
97:												
Chelan, gravelly substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-25	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.37	.37			
	25-46	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.0-0.5	.43	.43			
	46-60	0-5	1.30-1.40	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.17			
98:												
Chelan, gravelly substratum	0-10	4-10	1.10-1.25	2-6	0.16-0.21	0.0-2.9	1.0-2.0	.37	.37	4	2	134
	10-25	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.37	.37			
	25-46	3-11	1.10-1.25	2-6	0.14-0.24	0.0-2.9	0.0-0.5	.43	.43			
	46-60	0-5	1.30-1.40	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.17			
99:												
Cheviot	0-10	8-18	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.43	5	7	38
	10-32	8-18	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.43			
	32-60	8-18	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49			
Ralls	0-10	8-14	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.49	5	7	38
	10-20	18-35	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	20-32	15-30	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49			
	32-60	18-35	1.25-1.45	0.2-2	0.09-0.14	3.0-5.9	0.0-0.5	.15	.55			
Dougville	0-6	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	6-27	6-14	1.10-1.35	0.6-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	27-52	6-14	1.30-1.40	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			
100:												
Cheviot	0-10	8-18	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.43	5	7	38
	10-32	8-18	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.43			
	32-60	8-18	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
100:												
Ralls	0-10	8-14	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.49	5	7	38
	10-20	18-35	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	20-32	15-30	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49			
	32-60	18-35	1.25-1.45	0.2-2	0.09-0.14	3.0-5.9	0.0-0.5	.15	.55			
Grinrod	0-6	10-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49	2	7	38
	6-10	10-15	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.10	.43			
	10-22	18-35	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	22-32	---	---	---	---	---	---	---	---			
101:												
Cheviot	0-10	8-18	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.43	5	7	38
	10-32	8-18	1.25-1.50	0.6-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.43			
	32-60	8-18	1.35-1.55	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.10	.49			
Ralls	0-10	8-14	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.49	5	7	38
	10-20	18-35	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	20-32	15-30	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49			
	32-60	18-35	1.25-1.45	0.2-2	0.09-0.14	3.0-5.9	0.0-0.5	.15	.55			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
102:												
Conconully	0-7	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	7-20	4-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	20-32	4-12	1.20-1.45	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37			
	32-60	4-12	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.15	.37			
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
103:												
Conconully	0-7	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	7-20	4-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	20-32	4-12	1.20-1.45	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37			
	32-60	4-12	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.15	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
103:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
104:												
Conconully	0-7	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	7-20	4-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	20-32	4-12	1.20-1.45	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37			
	32-60	4-12	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.15	.37			
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
105:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Swakane	0-8	7-16	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	1	6	48
	8-13	5-15	1.45-1.55	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.32			
	13-18	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.5-1.0	.10	.32			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
106:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Swakane	0-8	7-16	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	1	6	48
	8-13	5-15	1.45-1.55	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.32			
	13-18	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.5-1.0	.10	.32			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
107:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Swakane	0-8	7-16	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	1	6	48
	8-13	5-15	1.45-1.55	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.32			
	13-18	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.5-1.0	.10	.32			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
108:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Wagberg	0-9	5-12	1.10-1.35	2-6	0.08-0.12	0.0-2.9	1.0-2.0	.20	.43	3	4	86
	9-26	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.5-1.0	.15	.43			
	26-48	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.15	.43			
	48-58	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
109:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Wagberg	0-9	5-12	1.10-1.35	2-6	0.08-0.12	0.0-2.9	1.0-2.0	.20	.43	3	4	86
	9-26	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.5-1.0	.15	.43			
	26-48	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.15	.43			
	48-58	---	---	---	---	---	---	---	---			
110:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Wagberg	0-9	5-12	1.10-1.35	2-6	0.08-0.12	0.0-2.9	1.0-2.0	.20	.43	3	4	86
	9-26	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.5-1.0	.15	.43			
	26-48	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.15	.43			
	48-58	---	---	---	---	---	---	---	---			
111:												
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
Wagberg	0-9	5-12	1.10-1.35	2-6	0.08-0.12	0.0-2.9	1.0-2.0	.20	.43	3	4	86
	9-26	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.5-1.0	.15	.43			
	26-48	5-10	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.15	.43			
	48-58	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
112:												
Corbaley	0-5	3-10	1.10-1.35	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.17	.32	1	3	86
	5-9	3-10	1.10-1.35	2-6	0.09-0.18	0.0-2.9	1.0-2.0	.17	.32			
	9-16	10-16	1.10-1.35	2-6	0.09-0.14	0.0-2.9	0.5-1.0	.10	.32			
	16-26	---	---	---	---	---	---	---	---			
Kester	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-25	3-10	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	25-35	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	35-45	---	---	---	---	---	---	---	---			
113:												
Cordy	0-16	8-14	1.10-1.25	0.6-2	0.18-0.24	0.0-2.9	1.0-4.0	.43	.43	5	4	86
	16-21	8-14	1.10-1.25	0.6-2	0.18-0.24	0.0-2.9	0.5-1.0	.43	.43			
	21-60	12-18	1.20-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.37	.43			
Stemilt	0-9	8-15	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-2.0	.28	.32	5	5	56
	9-18	15-27	1.25-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.32			
	18-40	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
	40-60	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
114:												
Dam	---	---	---	---	---	---	---	---	---	---	---	---
115:												
Deercut	0-5	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	5-10	6-13	1.10-1.35	2-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	10-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	24-28	---	---	0.0015-0.06	---	---	---	---	---			
	28-33	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	33-37	---	---	---	---	---	---	---	---			
116:												
Deercut	0-5	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	5-10	6-13	1.10-1.35	2-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	10-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	24-28	---	---	0.0015-0.06	---	---	---	---	---			
	28-33	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	33-37	---	---	---	---	---	---	---	---			
Aarup	0-9	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
116:												
Whiteye	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	7-18	6-13	1.30-1.55	0.6-2	0.14-0.21	0.0-2.9	0.5-1.0	.49	.49			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			
117:												
Deercut	0-5	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	5-10	6-13	1.10-1.35	2-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	10-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	24-28	---	---	0.0015-0.06	---	---	---	---	---			
	28-33	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	33-37	---	---	---	---	---	---	---	---			
Aarup	0-9	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			
Whiteye	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	7-18	6-13	1.30-1.55	0.6-2	0.14-0.21	0.0-2.9	0.5-1.0	.49	.49			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			
118:												
Deercut	0-5	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	5-10	6-13	1.10-1.35	2-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	10-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	24-28	---	---	0.0015-0.06	---	---	---	---	---			
	28-33	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	33-37	---	---	---	---	---	---	---	---			
Aarup	0-9	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	9-16	4-12	1.10-1.35	0.6-2	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	16-26	---	---	0.0015-0.06	---	---	---	---	---			
	26-36	---	---	---	---	---	---	---	---			
Whiteye	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	7-18	6-13	1.30-1.55	0.6-2	0.14-0.21	0.0-2.9	0.5-1.0	.49	.49			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
119:												
DelRio----------	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.43	.43	4	2	134
	13-45	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	45-60	4-6	1.55-1.65	6-20	0.08-0.13	0.0-2.9	0.0-0.5	.20	.20			
120:												
DelRio----------	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.43	.43	4	2	134
	13-45	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	45-60	4-6	1.55-1.65	6-20	0.08-0.13	0.0-2.9	0.0-0.5	.20	.20			
121:												
Dezellem----------	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			
122:												
Dezellem----------	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			
123:												
Dezellem----------	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
123:												
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			
124:												
Dezellem----------	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Brazlan----------	0-8	5-12	1.10-1.35	2-6	0.12-0.17	0.0-2.9	2.0-3.0	.15	.43	2	4	86
	8-12	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	12-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-34	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	34-38	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
125:												
Dezellem----------	0-10	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	10-20	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	20-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Stubblefield----------	0-12	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	12-22	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	22-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-41	---	---	0.0015-0.06	---	---	---	---	---			
	41-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
126:												
Dezellem----------	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Timentwa----------	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-20	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	20-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
126:												
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
127:												
Dezellem----------	0-10	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	10-20	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	20-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Timentwa----------	0-14	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	14-33	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	33-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
128:												
Dinkels----------	0-18	7-15	1.10-1.30	0.6-2	0.13-0.16	0.0-2.9	1.0-3.0	.20	.32	3	5	56
	18-28	7-15	1.10-1.35	2-6	0.10-0.15	0.0-2.9	0.5-1.0	.20	.37			
	28-41	7-15	1.20-1.40	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.15	.20			
	41-45	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
129:												
Dougville----------	0-6	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	6-27	6-14	1.10-1.35	0.6-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	27-52	10-16	1.30-1.40	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			
130:												
Dougville----------	0-6	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	6-27	6-14	1.10-1.35	0.6-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	27-52	10-16	1.30-1.40	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			
131:												
Dougville----------	0-6	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	6-27	6-14	1.10-1.35	0.6-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	27-52	10-16	1.30-1.40	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
132:												
Dougville----------	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
133:												
Dougville----------	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
134:												
Dougville----------	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
135:												
Dougville, cemented substratum----------	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	8-20	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-30	6-14	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.49	.49			
	30-48	15-20	1.25-1.40	2-6	0.09-0.10	0.0-2.9	0.5-1.0	.32	.37			
	48-59	27-30	1.20-1.40	0.2-0.6	0.15-0.20	3.0-5.9	0.0-0.5	.43	.43			
	59-60	5-35	1.55-1.65	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.55			
Badge----------	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
136:												
Dougville, cemented substratum----------	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	8-19	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-39	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	39-57	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	57-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
136:												
Farmer, cemented substratum	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.49	.49			
137:												
Dougville, cemented substratum	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	8-19	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-39	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	39-57	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	57-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
Farmer, cemented substratum	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.49	.49			
Dutchenry	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
138:												
Dougville, cemented substratum	0-8	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	8-19	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-39	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	39-57	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	57-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
Norax	0-4	14-24	1.25-1.45	0.6-2	0.18-0.22	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	4-34	27-35	1.30-1.60	0.2-0.6	0.18-0.23	3.0-5.9	0.5-1.0	.49	.49			
	34-54	10-18	1.30-1.60	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
	54-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
Nemire	0-16	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	16-37	4-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	37-47	3-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	47-60	5-12	1.10-1.55	0.6-2	0.15-0.20	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
139:												
Drysel	0-7	5-12	1.15-1.40	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.55	2	5	56
	7-10	5-12	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.55			
	10-17	7-13	1.30-1.55	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.43	.55			
	17-26	25-35	1.30-1.55	0.6-2	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37			
	26-33	25-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.0-0.5	.17	.37			
	33-57	---	---	0.01-0.2	---	---	---	---	---			
	57-60	---	---	---	---	---	---	---	---			
140:												
Drysel	0-7	5-12	1.15-1.40	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.55	2	5	56
	7-10	5-12	1.20-1.45	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.49	.55			
	10-17	7-13	1.30-1.55	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.43	.55			
	17-26	25-35	1.30-1.55	0.6-2	0.12-0.16	3.0-5.9	0.0-0.5	.20	.37			
	26-33	25-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.0-0.5	.17	.37			
	33-57	---	---	0.01-0.2	---	---	---	---	---			
	57-60	---	---	---	---	---	---	---	---			
Wanapum	0-6	7-16	1.10-1.30	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.20	.37	1	6	48
	6-15	18-35	1.25-1.45	0.2-0.6	0.08-0.11	0.0-2.9	0.0-0.5	.17	.37			
	15-20	---	---	0.0015-0.06	---	---	---	---	---			
	20-30	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	30-40	---	---	---	---	---	---	---	---			
141:												
Durixerolls	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Ellisforde	0-8	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	18-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
Elvedere	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
142:												
Durixerolls	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
142:												
Ellisforde----------	0-8	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	18-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
Elvedere----------	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
143:												
Durixerolls----------	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Ellisforde----------	0-8	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	18-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
Elvedere----------	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
144:												
Durixerolls, moist----	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Halaquepts, cemented substratum----------	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	5-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
145:												
Durixerolls, moist----	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
145:												
Halaquepts, cemented substratum	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	5-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
146:												
Durixerolls	0-9	5-10	1.10-1.35	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-21	7-25	1.20-1.40	0.6-6	0.13-0.15	0.0-2.9	0.5-2.0	.43	.43			
	21-30	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.5-1.0	.43	.49			
	30-34	7-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.28	.32			
	34-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Durixerolls, moist	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	3	86
	8-38	4-22	1.10-1.35	0.6-6	0.17-0.24	0.0-2.9	1.0-2.0	.43	.43			
	38-45	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	45-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Halaquepts, cemented substratum	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	5-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
147:												
Durixerolls, moist	0-6	4-13	1.10-1.35	0.6-2	0.19-0.25	0.0-2.9	2.0-3.0	.43	.43	3	5	56
	6-24	4-22	1.10-1.35	0.6-6	0.17-0.24	0.0-2.9	1.0-2.0	.43	.43			
	24-32	5-20	1.30-1.45	0.6-6	0.19-0.21	0.0-2.9	0.0-1.0	.49	.55			
	32-36	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	36-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Halaquepts	0-8	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	5	3	86
	8-15	4-22	1.10-1.40	0.6-2	0.15-0.23	0.0-2.9	0.5-2.0	.49	.49			
	15-26	5-20	1.10-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.37	.37			
	26-60	5-25	1.30-1.50	0.6-2	0.05-0.10	0.0-2.9	0.0-0.5	.43	.49			
148:												
Durixerolls, moist	0-6	4-13	1.10-1.35	0.6-2	0.19-0.25	0.0-2.9	2.0-3.0	.43	.43	3	5	56
	6-24	4-22	1.10-1.35	0.6-6	0.17-0.24	0.0-2.9	1.0-2.0	.43	.43			
	24-32	5-20	1.30-1.45	0.6-6	0.19-0.21	0.0-2.9	0.0-1.0	.49	.55			
	32-36	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	36-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Halaquepts	0-8	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	5	3	86
	8-15	4-22	1.10-1.40	0.6-2	0.15-0.23	0.0-2.9	0.5-2.0	.49	.49			
	15-26	5-20	1.10-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.37	.37			
	26-60	5-25	1.30-1.50	0.6-2	0.05-0.10	0.0-2.9	0.0-0.5	.43	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
149:												
Durixerolls----------	0-10	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	3	86
	10-32	4-22	1.10-1.35	0.6-6	0.17-0.24	0.0-2.9	1.0-2.0	.43	.43			
	32-42	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	42-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Durixerolls, moist----	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	2	134
	8-38	4-22	1.10-1.35	0.6-6	0.17-0.24	0.0-2.9	1.0-2.0	.43	.43			
	38-45	5-20	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.43	.49			
	45-60	5-20	1.30-1.45	0.6-6	---	0.0-2.9	0.0-0.5	.20	.32			
Halaquepts, cemented substratum----------	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	5-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
150:												
Dutchenry----------	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
151:												
Ebadlow----------	0-8	7-18	1.15-1.35	0.6-2	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	5	56
	8-32	18-27	1.25-1.45	0.6-2	0.16-0.22	3.0-5.9	1.0-2.0	.49	.55			
	32-49	18-27	1.35-1.55	0.6-2	0.04-0.12	0.0-2.9	0.0-1.0	.10	.49			
	49-60	4-12	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.0-0.5	.10	.43			
152:												
Ebadlow----------	0-8	7-18	1.15-1.35	0.6-2	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	5	56
	8-32	18-27	1.25-1.45	0.6-2	0.16-0.22	3.0-5.9	1.0-2.0	.49	.55			
	32-49	18-27	1.35-1.55	0.6-2	0.04-0.12	0.0-2.9	0.0-1.0	.10	.49			
	49-60	4-12	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.0-0.5	.10	.43			
Spofford----------	0-9	8-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-21	20-32	1.40-1.60	0.06-0.2	0.09-0.11	3.0-5.9	0.5-1.0	.43	.43			
	21-44	12-20	1.25-1.50	0.6-2	0.09-0.11	0.0-2.9	0.0-0.5	.55	.55			
	44-53	---	---	0.0015-0.06	---	---	---	---	---			
	53-58	5-16	1.25-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
	58-62	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
152:												
Badgermont	0-9	7-15	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	2.0-3.0	.10	.28	2	6	48
	9-25	18-27	1.30-1.55	0.6-2	0.06-0.13	0.0-2.9	1.0-2.0	.10	.28			
	25-38	27-35	1.40-1.60	0.6-2	0.05-0.12	0.0-2.9	0.5-1.0	.10	.24			
	38-42	---	---	---	---	---	---	---	---			
153:												
Ebadlow	0-8	7-18	1.15-1.35	0.6-2	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	3	5	56
	8-32	18-27	1.25-1.45	0.6-2	0.16-0.22	3.0-5.9	1.0-2.0	.49	.55			
	32-49	18-27	1.35-1.55	0.6-2	0.04-0.12	0.0-2.9	0.0-1.0	.10	.49			
	49-60	4-12	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.0-0.5	.10	.43			
Spofford	0-9	8-15	1.15-1.35	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	9-21	20-32	1.40-1.60	0.06-0.2	0.09-0.11	3.0-5.9	0.5-1.0	.43	.43			
	21-44	12-20	1.25-1.50	0.6-2	0.09-0.11	0.0-2.9	0.0-0.5	.55	.55			
	44-53	---	---	0.0015-0.06	---	---	---	---	---			
	53-58	5-16	1.25-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
	58-62	---	---	---	---	---	---	---	---			
Badgermont	0-9	7-15	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	2.0-3.0	.10	.28	2	6	48
	9-25	18-27	1.30-1.55	0.6-2	0.06-0.13	0.0-2.9	1.0-2.0	.10	.28			
	25-38	27-35	1.40-1.60	0.6-2	0.05-0.12	0.0-2.9	0.5-1.0	.10	.24			
	38-42	---	---	---	---	---	---	---	---			
154:												
Ellisforde	0-10	5-12	1.15-1.35	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	10-26	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	26-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			
155:												
Ellisforde	0-10	5-12	1.15-1.35	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	10-26	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	26-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			
156:												
Ellisforde	0-8	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	18-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
157:												
Ellisforde	0-10	5-18	1.10-1.30	0.6-2	0.15-0.19	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-27	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	27-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
158:												
Ellisforde	0-7	5-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.49	.49	5	5	56
	7-15	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	15-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
DelRio	0-10	3-10	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	0.5-1.0	.49	.49	5	3	86
	10-60	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
Nyssaton	0-9	8-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-60	8-18	1.30-1.40	0.06-0.6	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			
159:												
Ellisforde	0-10	5-18	1.10-1.30	0.6-2	0.15-0.19	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-27	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	27-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			
Halaquepts	0-8	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	5	3	86
	8-31	4-22	1.10-1.40	0.6-2	0.15-0.23	0.0-2.9	0.5-2.0	.49	.49			
	31-38	5-20	1.10-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.37	.37			
	38-45	5-34	1.30-1.50	0.2-0.6	0.05-0.21	0.0-2.9	0.0-0.5	.43	.49			
	45-50	5-25	1.30-1.50	0.6-2	0.05-0.10	0.0-2.9	0.0-0.5	.43	.49			
	50-60	5-10	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.37	.55			
160:												
Ellisforde	0-19	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	19-36	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	36-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
Nespelem	0-9	7-15	1.15-1.35	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.43	.43	3	3	86
	9-28	12-18	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
	28-38	10-18	1.45-1.60	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	38-60	10-30	1.20-1.40	0.2-0.6	---	0.0-2.9	0.0-0.5	.43	.43			
Nemire, moist	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	10-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
161:												
Ellisforde	0-7	5-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.49	.49	5	5	56
	7-15	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	15-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
Nyssaton	0-9	8-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-60	8-18	1.30-1.40	0.06-0.6	0.19-0.21	0.0-2.9	0.0-0.5	.43	.43			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
161:												
DelRio----------	0-10	3-10	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	0.5-1.0	.49	.49	5	3	86
	10-60	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
162:												
Elvedere----------	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
163:												
Elvedere----------	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
164:												
Elvedere----------	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
Leahy----------	0-6	5-15	1.15-1.35	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.49	.49	2	3	86
	6-13	35-50	1.20-1.40	0.06-0.2	0.10-0.14	6.0-8.9	0.0-0.5	.43	.43			
	13-27	35-45	1.20-1.40	0.2-0.6	0.10-0.14	6.0-8.9	0.0-0.5	.43	.43			
	27-60	20-40	1.20-1.40	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.43	.43			
165:												
Entiat----------	0-6	6-10	1.15-1.35	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	2	4	86
	6-11	8-14	1.25-1.50	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.17	.32			
	11-17	8-14	1.25-1.50	2-6	0.07-0.08	0.0-2.9	0.5-1.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
Torriorthents---------	0-8	3-6	1.15-1.35	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.17	.28	5	5	56
	8-60	0-5	1.40-1.65	20-20	0.01-0.02	0.0-2.9	0.0-0.5	.02	.10			
166:												
Entiat----------	0-6	6-10	1.15-1.35	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	2	4	86
	6-11	8-14	1.25-1.50	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.17	.32			
	11-17	8-14	1.25-1.50	2-6	0.07-0.08	0.0-2.9	0.5-1.0	.15	.32			
	17-27	---	---	---	---	---	---	---	---			
Roosevelt----------	0-12	5-10	1.30-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	2	3	86
	12-26	5-15	1.30-1.55	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
167:												
Ephrata----------	0-9	4-8	1.20-1.40	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	9-25	4-8	1.30-1.50	2-6	0.08-0.16	0.0-2.9	0.0-0.5	.20	.32			
	25-60	0-2	1.35-1.55	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.02	.15			
168:												
Esquatzel----------	0-7	5-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	7-12	5-12	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55			
	12-19	5-12	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	19-28	5-12	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-46	5-12	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	46-60	5-12	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
169:												
Esquatzel----------	0-7	5-12	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	4	5	56
	7-44	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.5-1.0	.55	.55			
	44-47	5-14	1.50-1.70	0.0015-0.06	---	0.0-2.9	0.0-0.5	.55	.55			
	47-60	5-15	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
170:												
Esquatzel----------	0-10	5-12	1.15-1.35	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	10-34	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.5-1.0	.55	.55			
	34-60	5-15	1.25-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
171:												
Ewall----------	0-18	2-6	1.25-1.45	6-20	0.08-0.11	0.0-2.9	0.5-1.0	.28	.28	5	2	134
	18-28	0-5	1.45-1.60	20-20	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	28-60	0-5	1.45-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
172:												
Ewall----------	0-18	2-6	1.25-1.45	6-20	0.08-0.11	0.0-2.9	0.5-1.0	.28	.28	5	2	134
	18-28	0-5	1.45-1.60	20-20	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
	28-60	0-5	1.45-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
Alecanyon----------	0-9	3-12	1.35-1.60	6-20	0.04-0.07	0.0-2.9	1.0-2.0	.10	.28	5	3	86
	9-12	2-10	1.35-1.60	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.24	.37			
	12-20	1-4	1.35-1.60	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.10	.20			
	20-60	1-4	1.35-1.60	20-20	0.01-0.05	0.0-2.9	0.0-0.5	.05	.20			
173:												
Farmer----------	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	0.03-0.05	0.0-2.9	0.0-0.5	.49	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
174:												
Farmer----------	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	0.03-0.05	0.0-2.9	0.0-0.5	.49	.49			
175:												
Farmer----------	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	0.03-0.05	0.0-2.9	0.0-0.5	.49	.49			
176:												
Farmer----------	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.49	.49			
177:												
Farmer----------	0-11	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	11-19	6-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	19-48	10-18	1.35-1.55	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	48-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.49	.49			
178:												
Farrell----------	0-8	5-15	1.20-1.40	0.6-2	0.13-0.17	0.0-2.9	1.0-2.0	.49	.49	4	3	86
	8-20	5-18	1.30-1.45	0.6-2	0.15-0.20	0.0-2.9	0.0-1.0	.43	.43			
	20-60	5-15	1.30-1.45	0.6-2	0.11-0.13	0.0-2.9	0.0-1.0	.24	.24			
179:												
Finley----------	0-8	4-10	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.7-1.0	.20	.37	3	4	86
	8-23	4-10	1.30-1.50	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.10	.37			
	23-60	0-4	1.40-1.60	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			
180:												
Finley----------	0-8	4-7	1.15-1.35	2-6	0.05-0.07	0.0-2.9	0.5-1.0	.24	.37	3	5	56
	8-23	4-10	1.30-1.50	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.28	.37			
	23-60	0-4	1.40-1.60	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.10	.32			
181:												
Finley----------	0-6	5-10	1.15-1.35	0.6-2	0.16-0.18	0.0-2.9	0.5-1.0	.32	.37	3	6	48
	6-22	4-10	1.30-1.50	2-6	0.09-0.13	0.0-2.9	0.0-0.5	.20	.37			
	22-26	4-10	1.30-1.50	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.10	.37			
	26-60	0-4	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
182:												
Ginnis	0-10	5-10	1.20-1.40	2-6	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	3	86
	10-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	20-29	5-14	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	29-35	5-14	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
183:												
Ginnis	0-10	5-10	1.20-1.40	2-6	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	3	86
	10-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	20-29	5-14	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	29-35	5-14	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
184:												
Ginnis	0-10	5-10	1.20-1.40	2-6	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	3	86
	10-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	20-29	5-14	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	29-35	5-14	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
Swakane	0-8	7-16	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	1	6	48
	8-13	5-15	1.45-1.55	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.32			
	13-18	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.5-1.0	.10	.32			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
185:												
Grinrod	0-6	10-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49	2	7	38
	6-10	10-15	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.10	.43			
	10-22	18-35	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	22-32	---	---	---	---	---	---	---	---			
Ralls	0-7	8-18	1.15-1.30	0.6-2	0.07-0.12	0.0-2.9	1.0-2.0	.15	.43	5	7	38
	7-12	18-35	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	12-60	18-35	1.25-1.45	0.2-2	0.09-0.14	3.0-5.9	0.0-0.5	.15	.55			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
186:												
Grinrod	0-6	10-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49	2	7	38
	6-10	10-15	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.10	.43			
	10-22	18-35	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	22-32	---	---	---	---	---	---	---	---			
Ralls	0-10	8-14	1.15-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.15	.49	5	7	38
	10-20	18-35	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.5-1.0	.20	.49			
	20-32	15-30	1.25-1.45	0.2-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.49			
	32-60	18-35	1.25-1.45	0.2-2	0.09-0.14	3.0-5.9	0.0-0.5	.15	.55			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
187:												
Grinrod	0-6	10-15	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49	2	7	38
	6-10	10-15	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.10	.43			
	10-22	18-35	1.30-1.50	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	22-32	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
188:												
Halaquepts	0-8	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	5	3	86
	8-31	4-22	1.10-1.40	0.6-2	0.15-0.23	0.0-2.9	0.5-2.0	.49	.49			
	31-38	5-20	1.10-1.40	2-6	0.11-0.15	0.0-2.9	0.5-1.0	.37	.37			
	38-45	5-34	1.30-1.50	0.2-0.6	0.05-0.21	0.0-2.9	0.0-0.5	.43	.49			
	45-50	5-35	1.30-1.50	0.6-2	0.05-0.10	0.0-2.9	0.0-0.5	.43	.49			
	50-60	5-10	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.37	.55			
Halaquepts, cemented substratum	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	25-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
189:												
Hanning	0-8	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	8-17	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43			
	17-28	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	38-51	20-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	51-60	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
190:												
Hanning, cemented substratum	0-7	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	7-28	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	28-50	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	50-58	7-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
McCue	0-6	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	6-26	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	26-53	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	53-60	---	---	0.0015-0.06	---	---	---	---	---			
Badgermont	0-9	7-15	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	2.0-3.0	.10	.28	2	6	48
	9-25	18-27	1.30-1.55	0.6-2	0.06-0.13	0.0-2.9	1.0-2.0	.10	.28			
	25-38	27-35	1.40-1.60	0.6-2	0.05-0.12	0.0-2.9	0.5-1.0	.10	.24			
	38-42	---	---	---	---	---	---	---	---			
191:												
Hanning, cemented substratum	0-7	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	7-28	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	28-50	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	50-58	7-18	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
McCue	0-6	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	6-26	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	26-53	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	53-60	---	---	0.0015-0.06	---	---	---	---	---			
Badgermont	0-9	7-15	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	2.0-3.0	.10	.28	2	6	48
	9-25	18-27	1.30-1.55	0.6-2	0.06-0.13	0.0-2.9	1.0-2.0	.10	.28			
	25-38	27-35	1.40-1.60	0.6-2	0.05-0.12	0.0-2.9	0.5-1.0	.10	.24			
	38-42	---	---	---	---	---	---	---	---			
192:												
Haploxerolls	0-8	5-14	1.10-1.50	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.43	.49	5	5	56
	8-13	5-14	1.10-1.55	0.6-2	0.13-0.23	0.0-2.9	1.0-3.0	.37	.43			
	13-47	1-12	1.10-1.60	0.6-2	0.04-0.20	0.0-2.9	0.5-1.0	.32	.43			
	47-61	1-8	1.40-1.65	2-20	0.01-0.12	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
193:												
Haploxerolls, wet-----	0-5	10-18	1.10-1.50	0.6-2	0.15-0.20	0.0-2.9	2.0-3.0	.37	.37	5	5	56
	5-32	5-20	1.10-1.55	0.6-6	0.11-0.22	0.0-2.9	1.0-2.0	.28	.28			
	32-43	2-20	1.20-1.60	2-20	0.04-0.16	0.0-2.9	0.0-1.0	.28	.28			
	43-60	5-18	1.10-1.60	2-6	0.06-0.17	0.0-2.9	0.0-1.0	.32	.32			
194:												
Haploxerolls----------	0-16	3-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	16-25	5-20	1.10-1.55	0.6-6	0.11-0.22	0.0-2.9	1.0-2.0	.28	.28			
	25-41	2-20	1.20-1.60	2-20	0.04-0.16	0.0-2.9	0.0-1.0	.28	.28			
	41-60	5-18	1.10-1.60	2-6	0.06-0.17	0.0-2.9	0.0-1.0	.32	.32			
Aquolls---------------	0-8	7-18	1.10-1.40	0.6-2	0.19-0.24	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	8-20	7-20	1.10-1.40	0.6-2	0.15-0.24	0.0-2.9	1.0-3.0	.43	.43			
	20-33	8-20	1.15-1.45	0.6-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	33-40	12-27	1.15-1.50	0.2-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	40-50	12-35	1.15-1.50	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	50-60	3-35	1.20-1.60	0.2-20	0.05-0.21	0.0-2.9	0.0-0.5	.20	.24			
Halaquepts, cemented substratum-----------	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	25-35	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
195:												
Heytou----------	0-10	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	10-26	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	26-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
196:												
Heytou----------	0-10	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	10-26	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	26-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
196:												
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
197:												
Heytou----------	0-10	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	10-26	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	26-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
198:												
Heytou----------	0-10	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	10-26	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	26-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
199:												
Heytou----------	0-10	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	10-36	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	36-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			
Stubblefield----------	0-12	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	12-22	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	22-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-41	---	---	0.0015-0.06	---	---	---	---	---			
	41-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
199:												
Siweeka, bedrock substratum----------	0-13	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	13-27	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	27-39	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	39-43	---	---	0.0015-0.06	---	---	---	---	---			
	43-47	---	---	---	---	---	---	---	---			
200:												
Heytou----------	0-4	10-15	1.30-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.15	.43	3	7	38
	4-20	5-18	1.35-1.45	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.43			
	20-60	5-18	1.70-2.00	0.06-0.2	0.05-0.12	0.0-2.9	0.0-0.5	.17	.49			
Timentwa----------	0-14	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	14-33	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	33-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Strat----------	0-9	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	5	56
	9-20	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	20-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
201:												
Jordy----------	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
202:												
Jordy----------	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
203:												
Jordy----------	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
204:												
Jordy----------	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
204:												
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
205:												
Jordy	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
206:												
Jordy	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
207:												
Jordy	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
208:												
Jordy	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
209:												
Jordy	0-12	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	12-21	10-18	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.49	.49			
	21-23	10-18	1.40-1.60	0.6-2	0.15-0.22	0.0-2.9	0.5-1.0	.43	.49			
	23-33	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
210:												
Kester	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-25	3-10	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	25-35	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	35-45	---	---	---	---	---	---	---	---			
211:												
Kiakus	0-3	8-12	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	2.0-3.0	.32	.32	2	5	56
	3-9	10-15	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.32	.32			
	9-22	18-22	1.30-1.50	0.6-2	0.14-0.16	3.0-5.9	1.0-2.0	.37	.37			
	22-32	---	---	---	---	---	---	---	---			
Shinn	0-4	10-15	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.32	1	7	38
	4-10	25-35	1.25-1.40	0.2-0.6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.43			
	10-14	---	---	---	---	---	---	---	---			
Lorena	0-12	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-25	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	25-35	---	---	---	---	---	---	---	---			
212:												
Kiakus	0-3	8-12	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	2.0-3.0	.32	.32	2	5	56
	3-9	10-15	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.32	.32			
	9-22	18-22	1.30-1.50	0.6-2	0.14-0.16	3.0-5.9	1.0-2.0	.37	.37			
	22-32	---	---	---	---	---	---	---	---			
Shinn	0-4	10-15	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.32	1	7	38
	4-10	25-35	1.25-1.40	0.2-0.6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.43			
	10-14	---	---	---	---	---	---	---	---			
Lorena	0-12	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-25	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	25-35	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
213:												
Kiona	0-3	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.43	5	4	86
	3-19	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-1.0	.20	.43			
	19-60	3-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			
214:												
Kiona	0-3	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.43	5	4	86
	3-19	7-15	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-1.0	.20	.43			
	19-60	3-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
215:												
Leahy	0-6	5-15	1.15-1.35	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.49	.49	2	3	86
	6-13	35-50	1.20-1.40	0.06-0.2	0.10-0.14	6.0-8.9	0.0-0.5	.43	.43			
	13-27	35-45	1.20-1.40	0.2-0.6	0.10-0.14	6.0-8.9	0.0-0.5	.43	.43			
	27-60	20-40	1.20-1.40	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.43	.43			
Elvedere	0-10	14-18	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-18	35-40	1.25-1.45	0.2-0.6	0.15-0.17	6.0-8.9	0.5-1.0	.43	.43			
	18-60	30-40	1.25-1.45	0.06-0.2	0.15-0.17	3.0-5.9	0.5-1.0	.43	.43			
Halaquepts, cemented substratum	0-3	4-13	1.10-1.35	2-6	0.13-0.21	0.0-2.9	0.5-2.0	.43	.43	3	3	86
	3-28	4-22	1.10-1.40	0.6-2	0.15-0.22	0.0-2.9	0.5-2.0	.49	.49			
	28-34	4-22	1.10-1.40	2-6	0.15-0.17	0.0-2.9	0.5-1.0	.37	.37			
	34-38	25-30	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
	38-43	5-10	1.10-1.50	2-6	---	0.0-2.9	0.0-0.5	.49	.55			
	43-60	5-10	1.30-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.49	.55			
216:												
Leidl	0-8	8-14	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	1.0-2.0	.28	.32	2	4	86
	8-18	8-14	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	0.5-1.0	.32	.37			
	18-27	17-35	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.0-0.5	.15	.37			
	27-38	25-30	1.25-1.45	0.2-0.6	0.06-0.07	3.0-5.9	0.0-0.5	.10	.37			
	38-48	---	---	---	---	---	---	---	---			
Stemilt, bedrock substratum	0-6	8-14	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.20	.32	4	4	86
	6-16	8-14	1.10-1.25	0.6-2	0.16-0.25	0.0-2.9	1.0-2.0	.24	.37			
	16-27	14-18	1.30-1.45	0.6-2	0.13-0.15	0.0-2.9	0.0-0.5	.20	.43			
	27-50	27-35	1.30-1.45	0.2-0.6	0.13-0.15	3.0-5.9	0.0-0.5	.17	.37			
	50-60	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
217:												
Leidl----------	0-8	8-14	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	1.0-2.0	.28	.32	2	4	86
	8-18	8-14	1.10-1.30	0.6-2	0.18-0.24	0.0-2.9	0.5-1.0	.32	.37			
	18-27	17-35	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.0-0.5	.15	.37			
	27-38	25-30	1.25-1.45	0.2-0.6	0.06-0.07	3.0-5.9	0.0-0.5	.10	.37			
	38-48	---	---	---	---	---	---	---	---			
Stemilt, bedrock substratum----------	0-6	8-14	1.10-1.25	0.6-2	0.16-0.21	0.0-2.9	1.0-2.0	.20	.32	4	4	86
	6-16	8-14	1.10-1.25	0.6-2	0.16-0.25	0.0-2.9	1.0-2.0	.24	.37			
	16-27	14-18	1.30-1.45	0.6-2	0.13-0.15	0.0-2.9	0.0-0.5	.20	.43			
	27-50	27-35	1.30-1.45	0.2-0.6	0.13-0.15	3.0-5.9	0.0-0.5	.17	.37			
	50-60	---	---	---	---	---	---	---	---			
218:												
Lickskillet----------	0-5	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	9-14	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	14-24	---	---	---	---	---	---	---	---			
219:												
Lickskillet----------	0-5	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	9-14	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	---	---	---	---	---	---			
220:												
Lickskillet----------	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.17	.32	1	7	38
	4-15	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32			
	15-19	---	---	---	---	---	---	---	---			
221:												
Lickskillet----------	0-6	10-18	1.25-1.45	2-6	0.08-0.13	0.0-2.9	1.0-2.0	.15	.32	1	5	56
	6-13	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	13-17	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	17-21	---	---	---	---	---	---	---	---			
Brazlan----------	0-4	5-12	1.10-1.35	2-6	0.12-0.17	0.0-2.9	2.0-3.0	.15	.43	2	4	86
	4-20	5-14	1.10-1.35	0.6-2	0.12-0.16	0.0-2.9	1.0-2.0	.10	.37			
	20-24	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	24-32	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	32-36	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
221:												
Dezellem	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
222:												
Logy	0-10	5-10	1.35-1.45	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.24	.37	5	4	86
	10-28	5-12	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.5-1.0	.05	.28			
	28-60	2-5	1.45-1.55	2-20	0.01-0.09	0.0-2.9	0.0-0.5	.02	.20			
223:												
Logy	0-10	5-10	1.35-1.45	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.24	.37	5	4	86
	10-28	5-12	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.5-1.0	.05	.28			
	28-60	2-5	1.45-1.55	2-20	0.01-0.09	0.0-2.9	0.0-0.5	.02	.20			
224:												
Logy	0-9	8-12	1.35-1.45	2-6	0.08-0.10	0.0-2.9	1.0-2.0	.15	.28	5	5	56
	9-22	5-12	1.40-1.50	2-6	0.04-0.07	0.0-2.9	0.5-1.0	.05	.28			
	22-60	2-5	1.45-1.55	2-20	0.01-0.09	0.0-2.9	0.0-0.5	.02	.20			
225:												
Lorena	0-13	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	13-22	18-30	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	22-26	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	26-36	---	---	---	---	---	---	---	---			
226:												
Lorena	0-13	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	13-22	18-30	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	22-26	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	26-36	---	---	---	---	---	---	---	---			
227:												
Lorena	0-13	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	13-22	18-30	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	22-26	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	26-36	---	---	---	---	---	---	---	---			
Broadax	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	6-18	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	18-27	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	27-60	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
228:												
Lorena	0-12	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-25	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	25-35	---	---	---	---	---	---	---	---			
Shinn	0-4	10-15	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.32	1	7	38
	4-10	25-35	1.25-1.40	0.2-0.6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.43			
	10-14	---	---	---	---	---	---	---	---			
229:												
Magallon	0-10	8-13	1.20-1.30	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.24	.49	2	3	86
	10-19	8-13	1.35-1.50	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			
	19-60	0-5	1.40-1.55	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
230:												
Magallon	0-10	8-13	1.20-1.30	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.24	.49	2	3	86
	10-19	8-13	1.35-1.50	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			
	19-60	0-5	1.40-1.55	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
231:												
Malaga	0-4	5-15	1.20-1.40	2-6	0.11-0.13	0.0-2.9	0.5-1.0	.20	.37	3	4	86
	4-12	5-15	1.30-1.50	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37			
	12-28	5-15	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	28-60	0-5	1.30-1.60	20-20	0.03-0.07	0.0-2.9	0.0-0.5	.05	.20			
232:												
Malaga	0-4	5-15	1.20-1.40	0.6-2	0.11-0.13	0.0-2.9	0.5-1.0	.17	.37	3	4	86
	4-12	5-15	1.30-1.50	0.6-2	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37			
	12-20	5-15	1.30-1.50	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.10	.43			
	20-60	0-5	1.30-1.60	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
233:												
McCue	0-6	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	6-26	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	26-53	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	53-60	---	---	0.0015-0.06	---	---	---	---	---			
Broadax, cemented substratum	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
234:												
McCue----------	0-6	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	6-26	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	26-53	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	53-60	---	---	0.0015-0.06	---	---	---	---	---			
Broadax, cemented substratum----------	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
235:												
McCue----------	0-6	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	6-26	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	26-53	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	53-60	---	---	0.0015-0.06	---	---	---	---	---			
Broadax, cemented substratum----------	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
236:												
McCue----------	0-7	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	7-13	35-50	1.30-1.60	0.06-0.2	0.16-0.21	6.0-8.9	0.5-1.0	.37	.37			
	13-22	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	22-42	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	42-60	---	---	0.0015-0.06	---	---	---	---	---			
Broadax, cemented substratum----------	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
Mondovi----------	0-20	10-14	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	20-60	10-18	1.20-1.45	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
237:												
McCue	0-7	14-24	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	7-13	35-50	1.30-1.60	0.06-0.2	0.16-0.21	6.0-8.9	0.5-1.0	.37	.37			
	13-22	33-40	1.30-1.60	0.2-0.6	0.18-0.21	6.0-8.9	0.0-0.5	.43	.43			
	22-42	18-30	1.30-1.60	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	42-60	---	---	0.0015-0.06	---	---	---	---	---			
Broadax, cemented substratum	0-6	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	6-15	8-18	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	15-25	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.55	.55			
	25-54	18-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.55	.55			
	54-60	---	---	0.0015-0.06	---	---	---	---	---			
Mondovi	0-20	10-14	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	20-60	10-18	1.20-1.45	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.32	.32			
238:												
Morrow	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
239:												
Morrow	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
240:												
Morrow	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
241:												
Morrow	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
241:												
Argabak----------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
242:												
Morrow----------	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
Argabak----------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
243:												
Morrow----------	0-8	8-16	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	8-15	16-27	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	1.0-2.0	.43	.43			
	15-26	27-35	1.30-1.55	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	26-34	18-27	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.49	.49			
	34-44	---	---	---	---	---	---	---	---			
Argabak----------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Badge----------	0-8	10-20	1.20-1.35	0.6-2	0.10-0.12	0.0-2.9	1.0-3.0	.15	.37	5	7	38
	8-13	10-20	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.37			
	13-28	24-35	1.20-1.35	0.2-0.6	0.06-0.11	0.0-2.9	0.5-1.0	.20	.37			
	28-60	20-28	1.20-1.35	0.6-2	0.05-0.07	0.0-2.9	0.0-0.5	.10	.43			
244:												
Nemire----------	0-16	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	16-37	4-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	37-47	3-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	47-60	5-12	1.10-1.55	0.6-2	0.15-0.20	0.0-2.9	0.0-0.5	.55	.55			
245:												
Nemire----------	0-24	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	24-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
246:												
Nemire	0-14	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	14-48	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	48-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
247:												
Nespelem	0-10	10-15	1.15-1.35	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.49	.49	3	3	86
	10-27	12-18	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
	27-31	10-18	1.45-1.60	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	31-60	10-30	1.20-1.40	0.2-0.6	---	0.0-2.9	0.0-0.5	.43	.43			
Nemire	0-14	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	14-48	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	48-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
248:												
Nespelem	0-10	10-15	1.15-1.35	0.6-2	0.17-0.19	0.0-2.9	1.0-2.0	.49	.49	3	3	86
	10-27	12-18	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.43	.43			
	27-31	10-18	1.45-1.60	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	31-60	10-30	1.20-1.40	0.2-0.6	---	0.0-2.9	0.0-0.5	.43	.43			
Nemire	0-14	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	14-48	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	48-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			
249:												
Norax	0-4	14-24	1.25-1.45	0.6-2	0.18-0.22	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	4-34	27-35	1.30-1.60	0.2-0.6	0.18-0.23	3.0-5.9	0.5-1.0	.49	.49			
	34-54	10-18	1.30-1.60	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
	54-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
250:												
Norax	0-4	14-24	1.25-1.45	0.6-2	0.18-0.22	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	4-34	27-35	1.30-1.60	0.2-0.6	0.18-0.23	3.0-5.9	0.5-1.0	.49	.49			
	34-54	10-18	1.30-1.60	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
	54-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
Dutchenry	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
250:												
Dougville, cemented substratum	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
251:												
Norax	0-4	14-24	1.25-1.45	0.6-2	0.18-0.22	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	4-34	27-35	1.30-1.60	0.2-0.6	0.18-0.23	3.0-5.9	0.5-1.0	.49	.49			
	34-54	10-18	1.30-1.60	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
	54-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
Dutchenry	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
Dougville, cemented substratum	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
252:												
Norax	0-4	14-24	1.25-1.45	0.6-2	0.18-0.22	3.0-5.9	1.0-2.0	.43	.43	4	5	56
	4-34	27-35	1.30-1.60	0.2-0.6	0.18-0.23	3.0-5.9	0.5-1.0	.49	.49			
	34-54	10-18	1.30-1.60	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
	54-60	5-14	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
Dutchenry	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
252:												
Dougville, cemented substratum	0-9	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	4	2	134
	9-18	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	18-36	6-14	1.10-1.35	0.6-6	0.16-0.25	0.0-2.9	1.0-2.0	.49	.49			
	36-58	8-18	1.35-1.45	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	58-60	5-14	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.55	.55			
253:												
Pateros	0-7	4-12	1.10-1.25	0.6-2	0.12-0.17	0.0-2.9	0.5-4.0	.15	.32	5	5	56
	7-18	3-12	1.10-1.25	0.6-2	0.08-0.12	0.0-2.9	0.5-2.0	.10	.37			
	18-60	3-10	1.10-1.25	2-6	0.05-0.09	0.0-2.9	0.0-2.0	.05	.43			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
254:												
Peshastin	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
255:												
Peshastin	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
256:												
Peshastin	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
257:												
Peshastin	0-12	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.37	3	3	86
	12-20	5-15	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.32	.43			
	20-60	5-15	1.40-1.60	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.43			
258:												
Peshastin	0-12	5-10	1.20-1.40	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.37	3	3	86
	12-20	5-15	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.32	.43			
	20-60	5-15	1.40-1.60	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.43			
259:												
Peshastin	0-9	5-10	1.25-1.45	2-6	0.11-0.14	0.0-2.9	1.0-2.0	.37	.49	3	4	86
	9-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.49			
	20-60	2-5	1.40-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
260:												
Peshastin----------	0-9	5-10	1.25-1.45	2-6	0.11-0.14	0.0-2.9	1.0-2.0	.37	.49	3	4	86
	9-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.20	.49			
	20-60	2-5	1.40-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.49			
261:												
Pogue----------	0-9	5-10	1.20-1.40	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	9-24	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	24-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
262:												
Pogue----------	0-9	5-10	1.20-1.40	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	9-24	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	24-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
263:												
Pogue----------	0-9	5-10	1.20-1.40	2-6	0.11-0.16	0.0-2.9	1.0-2.0	.32	.32	3	3	86
	9-24	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	24-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
264:												
Pogue----------	0-9	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	3	4	86
	9-26	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	26-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
265:												
Pogue----------	0-9	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.37	3	4	86
	9-26	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	26-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
266:												
Pogue----------	0-8	5-10	1.20-1.40	2-6	0.11-0.14	0.0-2.9	1.0-2.0	.24	.37	3	4	86
	8-18	5-10	1.35-1.45	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.43			
	18-24	5-10	1.35-1.55	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.17	.43			
	24-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
267:												
Pogue----------	0-13	5-10	1.20-1.40	2-6	0.11-0.14	0.0-2.9	1.0-2.0	.24	.37	3	4	86
	13-30	5-10	1.35-1.45	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.43			
	30-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
268:												
Pogue----------	0-10	5-10	1.20-1.40	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.15	.37	3	8	0
	10-15	5-10	1.35-1.45	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.43			
	15-28	5-10	1.35-1.55	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.17	.43			
	28-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
269:												
Pogue	0-10	5-10	1.20-1.40	2-6	0.12-0.14	0.0-2.9	1.0-2.0	.20	.37	3	4	86
	10-20	5-10	1.35-1.45	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.43			
	20-30	5-10	1.35-1.55	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.17	.43			
	30-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
270:												
Pogue	0-18	5-10	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	18-25	5-10	1.30-1.55	0.6-6	0.10-0.15	0.0-2.9	0.5-1.0	.24	.43			
	25-60	0-5	1.50-1.65	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
271:												
Prosser	0-5	5-12	1.25-1.45	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	5-16	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	16-26	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	26-36	---	---	---	---	---	---	---	---			
Starbuck	0-5	5-10	1.15-1.35	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.37	.49	1	4	86
	5-15	5-15	1.30-1.50	0.6-2	0.12-0.20	0.0-2.9	0.5-1.0	.32	.55			
	15-19	---	---	---	---	---	---	---	---			
272:												
Quincy	0-10	1-6	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	10-60	1-5	1.50-1.70	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.28	.28			
273:												
Quincy	0-6	1-4	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	1	250
	6-42	0-3	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.32	.32			
	42-54	0-3	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.24			
	54-60	0-4	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.28	.32			
274:												
Quincy	0-10	1-6	1.45-1.65	6-20	0.10-0.13	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	10-60	1-5	1.50-1.70	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.28	.28			
275:												
Quincy	0-6	1-4	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	1	250
	6-60	0-3	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.24			
DelRio	0-10	3-10	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	0.5-1.0	.49	.49	5	3	86
	10-60	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
Sanbee	0-8	2-7	1.20-1.45	6-20	0.08-0.15	0.0-2.9	0.5-1.0	.17	.24	3	2	134
	8-25	2-7	1.20-1.45	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.37			
	25-30	1-4	1.20-1.65	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.24	.28			
	30-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
276:												
Quincy----------	0-10	1-6	1.45-1.65	6-20	0.10-0.13	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	10-60	1-5	1.50-1.70	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.28	.28			
Ellisforde----------	0-10	5-12	1.15-1.35	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	10-26	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	26-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			
Cashmere----------	0-11	5-10	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-24	5-12	1.30-1.50	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
	24-60	5-10	1.40-1.55	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
277:												
Quincy----------	0-10	1-6	1.45-1.65	6-20	0.10-0.13	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	10-60	1-5	1.50-1.70	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.28	.28			
Ellisforde----------	0-10	5-12	1.15-1.35	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	10-26	5-18	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.49	.49			
	26-60	3-18	1.50-1.75	0.2-2	0.10-0.23	0.0-2.9	0.0-0.5	.43	.43			
Cashmere----------	0-11	5-10	1.20-1.40	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-24	5-12	1.30-1.50	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
	24-60	5-10	1.40-1.55	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.37	.37			
278:												
Quincy----------	0-6	1-4	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	1	250
	6-60	0-3	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.24			
Sanbee----------	0-8	2-7	1.20-1.45	6-20	0.08-0.15	0.0-2.9	0.5-1.0	.17	.24	3	2	134
	8-25	2-7	1.20-1.45	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.37			
	25-30	1-4	1.20-1.65	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.24	.28			
	30-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			
DelRio----------	0-10	3-10	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	0.5-1.0	.49	.49	5	3	86
	10-60	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
279:												
Ralls----------	0-13	6-10	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	13-44	18-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.43			
	44-60	16-35	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
280:												
Ralls----------	0-13	6-10	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	13-44	18-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.43			
	44-60	16-35	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
281:												
Renshigh	0-4	12-18	1.25-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	4-21	18-27	1.30-1.60	0.6-2	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	21-57	14-22	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			
	57-60	9-14	1.30-1.60	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.55	.55			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Renslow, cemented substratum	0-8	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	8-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-22	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-48	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	48-60	---	---	0.0015-0.06	---	---	---	---	---			
282:												
Renshigh	0-4	12-18	1.25-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	4-21	18-27	1.30-1.60	0.6-2	0.16-0.21	3.0-5.9	0.5-1.0	.43	.43			
	21-57	14-22	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.49			
	57-60	9-14	1.30-1.60	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.55	.55			
Alstown	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Renslow, cemented substratum	0-8	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	8-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-22	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-48	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	48-60	---	---	0.0015-0.06	---	---	---	---	---			
283:												
Renslow	0-9	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-23	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	23-41	10-18	1.30-1.60	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-60	10-18	1.35-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
284:												
Renslow----------	0-9	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-23	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	23-41	10-18	1.30-1.60	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-60	10-18	1.35-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
285:												
Renslow----------	0-9	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-23	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	23-41	10-18	1.30-1.60	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-60	10-18	1.35-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
286:												
Renslow----------	0-9	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	9-23	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	23-41	10-18	1.30-1.60	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-60	10-18	1.35-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
287:												
Renslow----------	0-8	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	8-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-22	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-48	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	48-60	---	---	0.0015-0.06	---	---	---	---	---			
288:												
Renslow----------	0-8	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	8-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-22	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-48	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	48-60	---	---	0.0015-0.06	---	---	---	---	---			
289:												
Renslow----------	0-8	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	8-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-22	8-16	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-48	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	48-60	---	---	0.0015-0.06	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
290:												
Renslow, cemented substratum	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-45	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	45-60	---	---	0.0015-0.06	---	---	---	---	---			
Achelake	0-5	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	5	2	134
	5-20	4-13	1.10-1.45	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-60	3-13	1.10-1.50	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
Willis	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			
291:												
Renslow, cemented substratum	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-45	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	45-60	---	---	0.0015-0.06	---	---	---	---	---			
Achelake	0-5	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	2.0-3.0	.43	.43	5	2	134
	5-20	4-13	1.10-1.45	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-60	3-13	1.10-1.50	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
Willis	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			
292:												
Renslow, cemented substratum	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-45	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	45-60	---	---	0.0015-0.06	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
292:												
Alstown----------	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Kester----------	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	10-25	3-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-32	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	32-42	---	---	---	---	---	---	---	---			
293:												
Renslow, cemented substratum----------	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-45	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	45-60	---	---	0.0015-0.06	---	---	---	---	---			
Alstown----------	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Kester----------	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	10-25	3-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-32	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	32-42	---	---	---	---	---	---	---	---			
294:												
Renslow, cemented substratum----------	0-10	7-14	1.25-1.50	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-15	7-15	1.30-1.55	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-29	10-18	1.30-1.60	0.6-2	0.14-0.21	0.0-2.9	0.0-0.5	.49	.55			
	29-45	7-18	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.55	.55			
	45-60	---	---	0.0015-0.06	---	---	---	---	---			
Alstown----------	0-13	7-12	1.25-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	13-33	10-18	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.5-1.0	.55	.55			
	33-54	8-12	1.40-1.55	0.2-0.6	0.10-0.12	0.0-2.9	0.0-0.5	.20	.55			
	54-60	3-10	1.30-1.45	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.55	.55			
Kester----------	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	10-25	3-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-32	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	32-42	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
295:												
Ritzville	0-8	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	8-19	5-10	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	19-26	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	26-40	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	40-50	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
296:												
Ritzville	0-7	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	7-14	5-10	1.25-1.50	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-28	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	28-42	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	42-52	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	52-60	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
297:												
Ritzville	0-10	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-33	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	33-50	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
298:												
Ritzville	0-10	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-33	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	33-50	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
299:												
Ritzville	0-10	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-33	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	33-50	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
300:												
Ritzville	0-10	4-10	1.15-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	10-33	5-10	1.30-1.55	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.55	.55			
	33-50	5-10	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.50-1.70	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.43			
301:												
Riverwash	0-60	---	---	---	---	---	---	---	---	---	---	---
302:												
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
302:												
Couleedam	0-4	5-15	1.40-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.17	.32	1	5	56
	4-9	5-15	1.40-1.55	2-6	0.05-0.08	0.0-2.9	1.0-2.0	.17	.32			
	9-16	5-15	1.45-1.60	2-6	0.04-0.08	0.0-2.9	0.5-1.0	.15	.32			
	16-26	---	---	---	---	---	---	---	---			
Roosevelt	0-12	5-10	1.30-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	2	3	86
	12-26	5-15	1.30-1.55	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
303:												
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Ginnis	0-10	5-10	1.20-1.40	2-6	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	3	86
	10-20	5-10	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	20-29	5-14	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.24	.32			
	29-35	5-14	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.10	.24			
	35-45	---	---	---	---	---	---	---	---			
Swakane	0-8	7-16	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.20	.32	1	6	48
	8-13	5-15	1.45-1.55	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.32			
	13-18	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.5-1.0	.10	.32			
	18-28	---	---	---	---	---	---	---	---			
304:												
Roloff	0-11	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	11-17	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-29	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	29-33	---	---	---	---	---	---	---	---			
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
305:												
Royal	0-10	2-8	1.25-1.45	6-20	0.08-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	10-16	5-10	1.30-1.50	2-6	0.12-0.16	0.0-2.9	0.0-0.5	.49	.49			
	16-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
306:												
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
307:												
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
Stemilt	0-9	8-15	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-2.0	.28	.32	5	5	56
	9-18	15-27	1.25-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.32			
	18-40	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
	40-60	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
308:												
Sagehill	0-8	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	8-19	2-8	1.30-1.55	0.6-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	19-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
309:												
Sanbee	0-7	2-7	1.20-1.45	6-20	0.08-0.15	0.0-2.9	0.5-1.0	.17	.24	2	2	134
	7-19	2-7	1.20-1.45	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.37			
	19-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			
310:												
Sanbee	0-8	3-8	1.20-1.45	2-6	0.13-0.20	0.0-2.9	0.5-1.0	.24	.28	2	2	134
	8-12	2-9	1.20-1.45	2-6	0.11-0.18	0.0-2.9	0.0-0.5	.28	.32			
	12-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			
311:												
Sanbee	0-7	3-8	1.20-1.45	2-6	0.15-0.23	0.0-2.9	0.5-1.0	.32	.37	3	2	134
	7-14	2-9	1.20-1.45	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.37			
	14-28	2-8	1.20-1.45	2-6	0.12-0.20	0.0-2.9	0.0-0.5	.37	.37			
	28-37	1-4	1.20-1.65	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.24	.28			
	37-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			
312:												
Sanbee	0-8	3-8	1.20-1.45	2-6	0.13-0.20	0.0-2.9	0.5-1.0	.24	.28	2	2	134
	8-12	2-9	1.20-1.45	2-6	0.11-0.18	0.0-2.9	0.0-0.5	.28	.32			
	12-60	1-4	1.40-1.65	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.20	.24			
Quincy	0-6	1-4	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	1	250
	6-42	0-3	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.32	.32			
	42-54	0-3	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.24			
	54-60	0-4	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.28	.32			
313:												
Schawana	0-3	3-5	1.40-1.60	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.28	.28	1	2	134
	3-12	5-8	1.40-1.60	2-6	0.11-0.13	0.0-2.9	0.5-1.0	.24	.32			
	12-22	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
313:												
Schawana, cobbly------	0-3	3-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.15	.28	1	3	86
	3-12	5-8	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.24	.32			
	12-22	---	---	---	---	---	---	---	---			
314:												
Selah-----------------	0-16	10-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	16-23	24-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	23-31	5-24	1.30-1.55	0.2-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.37			
	31-35	---	---	0.0015-0.06	---	---	---	---	---			
	35-40	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	40-44	---	---	---	---	---	---	---	---			
315:												
Sevar-----------------	0-5	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	5-10	6-14	1.10-1.55	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	18-35	1.40-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	24-28	14-18	1.40-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.49	.49			
	28-32	---	---	0.0015-0.06	---	---	---	---	---			
	32-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
316:												
Shinn-----------------	0-4	10-15	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.15	.32	1	7	38
	4-10	25-35	1.25-1.40	0.2-0.6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.43			
	10-14	---	---	---	---	---	---	---	---			
Lorena----------------	0-12	8-16	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.37	.37	2	5	56
	12-25	18-30	1.30-1.55	0.6-2	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	25-35	---	---	---	---	---	---	---	---			
317:												
Silico----------------	0-6	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	6-12	4-14	1.10-1.35	2-6	0.16-0.24	0.0-2.9	1.0-2.0	.49	.49			
	12-16	---	---	0.0015-0.06	---	---	---	---	---			
	16-21	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	21-31	---	---	---	---	---	---	---	---			
318:												
Silico----------------	0-6	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	6-12	4-14	1.10-1.35	2-6	0.16-0.24	0.0-2.9	1.0-2.0	.49	.49			
	12-16	---	---	0.0015-0.06	---	---	---	---	---			
	16-21	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	21-31	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
318:												
Sevar----------	0-5	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	5-10	6-14	1.10-1.55	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	18-35	1.40-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	24-28	14-18	1.40-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.49	.49			
	28-32	---	---	0.0015-0.06	---	---	---	---	---			
	32-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
Dutchenry----------	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
319:												
Silico----------	0-6	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	6-12	4-14	1.10-1.35	2-6	0.16-0.24	0.0-2.9	1.0-2.0	.49	.49			
	12-16	---	---	0.0015-0.06	---	---	---	---	---			
	16-21	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	21-31	---	---	---	---	---	---	---	---			
Sevar----------	0-5	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	5-10	6-14	1.10-1.55	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	18-35	1.40-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	24-28	14-18	1.40-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.49	.49			
	28-32	---	---	0.0015-0.06	---	---	---	---	---			
	32-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
Dutchenry----------	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
320:												
Silico----------	0-6	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	6-12	4-14	1.10-1.35	2-6	0.16-0.24	0.0-2.9	1.0-2.0	.49	.49			
	12-16	---	---	0.0015-0.06	---	---	---	---	---			
	16-21	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	21-31	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
320:												
Sevar	0-5	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	5-10	6-14	1.10-1.55	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	10-24	18-35	1.40-1.55	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
	24-28	14-18	1.40-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.49	.49			
	28-32	---	---	0.0015-0.06	---	---	---	---	---			
	32-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
Dutchenry	0-7	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	2	2	134
	7-15	4-14	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49			
	15-33	4-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.55			
	33-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-42	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	42-52	---	---	---	---	---	---	---	---			
321:												
Simsfield	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
322:												
Simsfield	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
323:												
Simsfield	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
324:												
Simsfield	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
324:												
Ellisforde----------	0-8	5-10	1.20-1.35	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	8-18	5-18	1.20-1.35	0.6-2	0.14-0.19	0.0-2.9	0.5-1.0	.49	.49			
	18-60	5-18	1.30-1.45	0.2-0.6	0.14-0.19	0.0-2.9	0.0-0.5	.43	.43			
DelRio----------	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.43	.43	4	2	134
	13-45	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	45-60	4-6	1.55-1.65	6-20	0.08-0.13	0.0-2.9	0.0-0.5	.20	.20			
325:												
Simsfield----------	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
Zeemal----------	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.49	.49	2	2	134
	8-12	5-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.55	.55			
	12-17	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	17-33	10-24	1.40-1.55	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
	33-60	14-35	1.40-1.55	0.2-0.6	---	0.0-2.9	0.0-0.5	.55	.55			
326:												
Simsfield----------	0-12	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.49	.49	3	2	134
	12-18	5-14	1.10-1.35	0.6-2	0.18-0.27	0.0-2.9	0.5-1.0	.43	.55			
	18-28	9-18	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
	28-34	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.55			
	34-60	5-18	1.40-1.50	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
Zeemal----------	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.49	.49	2	2	134
	8-12	5-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.55	.55			
	12-17	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	17-33	10-24	1.40-1.55	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
	33-60	14-35	1.40-1.55	0.2-0.6	---	0.0-2.9	0.0-0.5	.55	.55			
327:												
Siweeka----------	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
327:												
Siweeka, bedrock substratum	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
328:												
Siweeka	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Siweeka, bedrock substratum	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
329:												
Siweeka	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Siweeka, bedrock substratum	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
330:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Argabak----------	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			
331:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Argabak----------	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
332:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Argabak----------	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
333:												
Siweeka, bedrock substrarum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			
334:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			
335:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
336:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Brazlan----------	0-8	5-12	1.10-1.35	2-6	0.12-0.17	0.0-2.9	2.0-3.0	.15	.43	2	4	86
	8-12	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	12-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-34	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	34-38	---	---	---	---	---	---	---	---			
Brazlan, extremely bouldery----------	0-5	5-12	1.10-1.35	2-6	0.05-0.10	0.0-2.9	2.0-3.0	.20	.43	2	8	0
	5-13	5-14	1.10-1.35	0.6-2	0.12-0.16	0.0-2.9	1.0-2.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	25-29	---	---	---	---	---	---	---	---			
337:												
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
Brazlan----------	0-4	5-12	1.10-1.35	2-6	0.12-0.17	0.0-2.9	2.0-3.0	.15	.43	2	4	86
	4-20	5-14	1.10-1.35	0.6-2	0.12-0.16	0.0-2.9	1.0-2.0	.10	.37			
	20-24	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	24-32	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	32-36	---	---	---	---	---	---	---	---			
Argabak----------	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
338:												
Siweeka, bedrock substratum	0-13	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	13-27	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	27-39	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	39-43	---	---	0.0015-0.06	---	---	---	---	---			
	43-47	---	---	---	---	---	---	---	---			
Lickskillet	0-6	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	6-12	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	12-18	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Argabak	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
339:												
Siweeka, bedrock substratum	0-13	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	13-27	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	27-39	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	39-43	---	---	0.0015-0.06	---	---	---	---	---			
	43-47	---	---	---	---	---	---	---	---			
Stubblefield	0-12	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	12-22	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	22-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-41	---	---	0.0015-0.06	---	---	---	---	---			
	41-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
Timentwa	0-14	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	14-33	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	33-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
340:												
Siweeka, bedrock substratum	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
340:												
Timentwa----------	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-27	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	27-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Dezellem----------	0-9	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	9-30	5-14	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	30-60	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
341:												
Siweeka----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-31	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	31-40	---	---	0.0015-0.06	---	---	---	---	---			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Timentwa----------	0-14	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	14-33	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	33-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Stubblefield----------	0-9	5-14	1.30-1.55	2-6	0.07-0.11	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	9-15	7-14	1.30-1.55	2-6	0.05-0.11	0.0-2.9	0.5-1.0	.20	.43			
	15-27	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	27-57	---	---	0.0015-0.06	---	---	---	---	---			
	57-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
342:												
Skaha----------	0-6	1-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.20	.37	5	3	86
	6-15	1-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.0-0.5	.20	.37			
	15-60	0-3	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.20			
343:												
Skaha----------	0-8	0-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.15	.28	5	4	86
	8-22	0-5	1.45-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.15	.24			
	22-60	0-5	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
344:												
Skaha----------	0-8	0-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.15	.28	5	4	86
	8-22	0-5	1.45-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.15	.24			
	22-60	0-5	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
345:												
Skaha----------	0-8	0-5	1.40-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.15	.28	5	4	86
	8-22	0-5	1.45-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.15	.24			
	22-60	0-5	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.24			
Quincy----------	0-6	1-4	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.24	.24	5	1	250
	6-42	0-3	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.32	.32			
	42-54	0-3	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.24			
	54-60	0-4	1.45-1.60	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.28	.32			
346:												
Skaha----------	0-9	5-14	1.30-1.55	2-6	0.08-0.15	0.0-2.9	1.0-2.0	.28	.37	5	4	86
	9-60	0-5	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-1.0	.05	.24			
Tubspring----------	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	3	86
	12-35	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	35-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
347:												
Slickear----------	0-10	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	3	2	134
	10-22	6-14	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	22-46	18-28	1.45-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	46-50	---	---	0.0015-0.06	---	---	---	---	---			
	50-55	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	55-59	---	---	---	---	---	---	---	---			
348:												
Slickear----------	0-10	5-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	3	2	134
	10-22	6-14	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	22-46	18-28	1.45-1.60	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
	46-50	---	---	0.0015-0.06	---	---	---	---	---			
	50-55	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	55-59	---	---	---	---	---	---	---	---			
349:												
Slusser----------	0-8	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	5	2	134
	8-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-20	10-18	1.30-1.60	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	20-52	10-18	1.20-1.60	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.55	.55			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
350:												
Slusser	0-8	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	5	2	134
	8-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-20	10-18	1.30-1.60	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	20-52	10-18	1.20-1.60	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	52-60	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.55	.55			
351:												
Slusser	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	7-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-22	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-46	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	46-58	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
352:												
Slusser	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	7-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-22	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-46	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	46-58	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
353:												
Slusser	0-6	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	6-11	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.30-1.60	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	28-41	10-18	1.30-1.60	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.49	.55			
	41-45	---	---	0.0015-0.06	---	---	---	---	---			
	45-50	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	50-60	---	---	---	---	---	---	---	---			
354:												
Slusser, cemented substratum	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	7-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-22	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-46	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	46-58	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
Alsash	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-11	6-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.40-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	28-60	4-8	1.40-1.65	0.2-0.6	0.03-0.12	0.0-2.9	0.0-0.5	.28	.43			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
354:												
Nemire, moist---	0-8	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	8-20	4-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-60	3-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
355:												
Slusser, cemented substratum---	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	3	2	134
	7-12	6-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	12-22	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.55	.55			
	22-46	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	46-58	10-18	1.30-1.55	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	58-60	---	---	0.0015-0.06	---	---	---	---	---			
Alsash---	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	7-11	6-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	11-28	10-18	1.40-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.49	.49			
	28-60	4-8	1.40-1.65	0.2-0.6	0.03-0.12	0.0-2.9	0.0-0.5	.28	.43			
Nemire---	0-8	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	8-20	4-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	1.0-2.0	.49	.49			
	20-60	3-13	1.10-1.35	2-6	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
356:												
Soaplake---	0-4	5-10	1.35-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	1	3	86
	4-12	5-15	1.30-1.55	2-6	0.10-0.16	0.0-2.9	1.0-2.0	.28	.32			
	12-22	---	---	---	---	---	---	---	---			
Roosevelt---	0-12	5-10	1.30-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	2	3	86
	12-26	5-15	1.30-1.55	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop---	0-60	---	---	---	---	---	---	---	---	---	---	---
357:												
Soaplake---	0-4	5-10	1.35-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	1	3	86
	4-12	5-15	1.30-1.55	2-6	0.10-0.16	0.0-2.9	1.0-2.0	.28	.32			
	12-22	---	---	---	---	---	---	---	---			
Roosevelt---	0-12	5-10	1.30-1.50	2-6	0.13-0.18	0.0-2.9	1.0-2.0	.37	.37	2	3	86
	12-26	5-15	1.30-1.55	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.28			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop---	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
358:												
Sprauer	0-8	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	8-22	4-12	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.49	.49			
	22-30	3-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.0-0.5	.49	.55			
	30-40	---	---	0.0015-0.06	---	---	---	---	---			
	40-44	---	---	---	---	---	---	---	---			
359:												
Sprauer	0-8	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	8-22	4-12	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.49	.49			
	22-30	3-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.0-0.5	.49	.55			
	30-40	---	---	0.0015-0.06	---	---	---	---	---			
	40-44	---	---	---	---	---	---	---	---			
360:												
St. Andrews	0-7	5-14	1.15-1.35	0.6-2	0.14-0.24	0.0-2.9	1.0-2.0	.43	.43	3	4	86
	7-14	6-14	1.20-1.45	0.6-2	0.14-0.24	0.0-2.9	1.0-2.0	.49	.49			
	14-29	18-27	1.30-1.60	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.49	.49			
	29-33	---	---	0.0015-0.06	---	---	0.0-0.5	---	---			
	33-60	4-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
361:												
St. Andrews	0-7	5-14	1.15-1.35	0.6-2	0.14-0.24	0.0-2.9	1.0-2.0	.43	.43	3	4	86
	7-14	6-14	1.20-1.45	0.6-2	0.14-0.24	0.0-2.9	1.0-2.0	.49	.49			
	14-29	18-27	1.30-1.60	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.49	.49			
	29-33	---	---	0.0015-0.06	---	---	---	---	---			
	33-60	4-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
362:												
Starbuck	0-5	5-10	1.15-1.35	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.37	.49	1	4	86
	5-15	5-15	1.30-1.50	0.6-2	0.11-0.20	0.0-2.9	0.5-1.0	.32	.55			
	15-25	---	---	---	---	---	---	---	---			
Bakeoven	0-4	15-25	1.25-1.35	0.2-0.6	0.06-0.09	0.0-2.9	1.0-3.0	.10	.37	1	7	38
	4-7	18-33	1.30-1.40	0.2-0.6	0.05-0.14	0.0-2.9	0.5-2.0	.10	.32			
	7-17	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
363:												
Stemilt	0-9	8-15	1.10-1.30	0.6-2	0.14-0.20	0.0-2.9	1.0-2.0	.28	.32	5	5	56
	9-18	15-27	1.25-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.20	.32			
	18-40	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			
	40-60	27-35	1.30-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
363:												
Cordy----------	0-16	8-14	1.10-1.25	0.6-2	0.18-0.24	0.0-2.9	1.0-4.0	.43	.43	5	4	86
	16-21	8-14	1.10-1.25	0.6-2	0.18-0.24	0.0-2.9	0.5-1.0	.43	.43			
	21-60	12-18	1.20-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.37	.43			
364:												
Strat----------	0-8	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	5	56
	8-18	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	18-27	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	27-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
365:												
Strat----------	0-8	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	5	56
	8-18	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	18-27	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	27-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
366:												
Strat----------	0-8	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	5	56
	8-18	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	18-27	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	27-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
367:												
Strat----------	0-8	7-12	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.32	.37	3	6	48
	8-23	7-12	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.15	.37			
	23-60	1-3	1.40-1.60	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.05	.20			
368:												
Strat----------	0-8	7-12	1.15-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.32	.43	3	6	48
	8-23	7-12	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.15	.37			
	23-60	1-3	1.40-1.60	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.05	.20			
369:												
Strat----------	0-9	7-14	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	9-24	10-15	1.40-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.15	.49			
	24-60	1-3	1.45-1.60	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.10	.20			
370:												
Strat----------	0-10	7-12	1.20-1.35	0.6-2	0.11-0.13	0.0-2.9	1.0-2.0	.24	.49	3	7	38
	10-22	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	22-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
371:												
Strat	0-9	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.24	.49	3	4	86
	9-20	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	20-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
Tubspring	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	12-20	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	20-31	2-8	1.30-1.55	6-20	0.09-0.17	0.0-2.9	0.0-0.5	.10	.28			
	31-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
372:												
Strat	0-9	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.24	.49	3	4	86
	9-20	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	20-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
Tubspring	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	12-20	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	20-31	1-5	1.30-1.55	6-20	0.09-0.17	0.0-2.9	0.0-0.5	.10	.28			
	31-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
373:												
Strat	0-18	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.24	.49	3	3	86
	18-25	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	25-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
Tubspring	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	3	86
	12-35	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	35-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
DelRio	0-14	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.43	.43	5	2	134
	14-60	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
374:												
Strat	0-8	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	5	56
	8-36	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	36-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
Tubspring	0-10	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	10-36	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	36-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
Nemire	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-3.0	.43	.43	5	2	134
	10-40	2-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.49	.49			
	40-60	2-10	1.35-1.50	2-20	0.05-0.13	0.0-2.9	0.0-0.5	.10	.17			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
375:												
Strat	0-18	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.24	.49	3	3	86
	18-25	5-10	1.30-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.15	.37			
	25-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
Tubspring	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	3	86
	12-35	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	35-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
Skaha	0-9	5-14	1.30-1.55	2-6	0.08-0.15	0.0-2.9	1.0-2.0	.28	.37	5	4	86
	9-60	0-5	1.45-1.60	20-20	0.02-0.04	0.0-2.9	0.0-1.0	.05	.24			
376:												
Stratford	0-7	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	7-18	5-10	1.30-1.55	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.32	.49			
	18-22	5-12	1.30-1.55	0.6-2	0.09-0.14	0.0-2.9	0.0-0.5	.15	.49			
	22-60	2-5	1.50-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
377:												
Stratford	0-7	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	7-18	5-10	1.30-1.55	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.32	.49			
	18-22	5-12	1.30-1.55	0.6-2	0.09-0.14	0.0-2.9	0.0-0.5	.15	.49			
	22-60	2-5	1.50-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
378:												
Stratford	0-7	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	7-18	5-10	1.30-1.55	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.32	.49			
	18-22	5-12	1.30-1.55	0.6-2	0.09-0.14	0.0-2.9	0.0-0.5	.15	.49			
	22-60	2-5	1.50-1.60	20-20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
379:												
Stubblefield	0-10	8-12	1.30-1.50	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.32	.32	3	6	48
	10-28	5-12	1.40-1.60	0.6-2	0.07-0.13	0.0-2.9	0.5-1.0	.15	.32			
	28-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
380:												
Supplee	0-9	3-10	1.10-1.25	0.6-2	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	3	2	134
	9-18	2-10	1.10-1.25	2-6	0.13-0.22	0.0-2.9	0.5-1.0	.32	.37			
	18-27	2-8	1.10-1.25	2-6	0.12-0.20	0.0-2.9	0.0-0.5	.24	.37			
	27-60	0-2	1.35-1.60	20-20	0.01-0.03	0.0-2.9	0.0-0.5	.02	.10			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
381:												
Supplee	0-9	3-10	1.10-1.25	0.6-2	0.16-0.23	0.0-2.9	1.0-2.0	.37	.37	3	2	134
	9-18	2-10	1.10-1.25	2-6	0.13-0.22	0.0-2.9	0.5-1.0	.32	.37			
	18-27	2-8	1.10-1.25	2-6	0.12-0.20	0.0-2.9	0.0-0.5	.24	.37			
	27-60	0-2	1.35-1.60	20-20	0.01-0.03	0.0-2.9	0.0-0.5	.02	.10			
382:												
Tagear	0-13	4-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	13-34	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.43	.43			
	34-39	5-12	1.25-1.45	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.32			
	39-49	5-12	1.25-1.45	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-52	2-10	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
	52-60	3-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
383:												
Tagear	0-13	4-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	13-34	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.43	.43			
	34-39	5-12	1.25-1.45	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.32			
	39-49	5-12	1.25-1.45	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-52	2-10	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
	52-60	3-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
384:												
Tagear	0-13	4-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	13-34	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.43	.43			
	34-39	5-12	1.25-1.45	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.32			
	39-49	5-12	1.25-1.45	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-52	2-10	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
	52-60	3-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
385:												
Taunton	0-8	5-8	1.20-1.40	2-6	0.12-0.14	0.0-2.9	0.5-2.0	.37	.37	2	3	86
	8-19	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	19-27	5-12	1.30-1.50	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.20	.49			
	27-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-57	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	57-67	---	---	---	---	---	---	---	---			
386:												
Taunton	0-8	5-12	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-3.0	.55	.55	2	5	56
	8-19	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	19-27	5-12	1.30-1.50	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.49			
	27-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-57	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	57-67	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
387:												
Taunton----------	0-8	5-12	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-3.0	.55	.55	2	5	56
	8-19	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	19-27	5-12	1.30-1.50	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.49			
	27-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-57	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	57-67	---	---	---	---	---	---	---	---			
388:												
Taunton----------	0-8	5-12	1.15-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-3.0	.55	.55	2	5	56
	8-19	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	19-27	5-12	1.30-1.50	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.49			
	27-37	---	---	0.0015-0.06	---	---	---	---	---			
	37-57	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	57-67	---	---	---	---	---	---	---	---			
Finley----------	0-8	4-7	1.20-1.40	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.32	.37	3	4	86
	8-23	4-10	1.30-1.50	2-6	0.08-0.11	0.0-2.9	0.0-0.5	.28	.37			
	23-60	0-4	1.40-1.60	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.10	.32			
389:												
Taunton----------	0-9	5-8	1.15-1.40	2-6	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	9-20	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	20-29	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.20	.49			
	29-33	---	---	0.0015-0.06	---	---	---	---	---			
	33-53	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	53-63	---	---	---	---	---	---	---	---			
Scoon----------	0-6	5-12	1.20-1.40	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	6-10	5-12	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.32	.55			
	10-13	5-12	1.20-1.40	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	13-17	---	---	0.0015-0.06	---	---	---	---	---			
	17-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
390:												
Taunton----------	0-9	5-8	1.15-1.40	2-6	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	9-20	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	20-29	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.20	.49			
	29-33	---	---	0.0015-0.06	---	---	---	---	---			
	33-53	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	53-63	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
390:												
Scoon	0-6	5-12	1.20-1.40	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	6-10	5-12	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.32	.55			
	10-13	5-12	1.20-1.40	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	13-17	---	---	0.0015-0.06	---	---	---	---	---			
	17-37	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	37-41	---	---	---	---	---	---	---	---			
391:												
Terlan	0-8	7-15	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	1	5	56
	8-15	18-27	1.25-1.50	0.2-2	0.11-0.18	3.0-5.9	0.5-1.0	.20	.37			
	15-18	5-24	1.25-1.50	0.2-2	0.10-0.14	0.0-2.9	0.5-1.0	.17	.37			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			
392:												
Terlan	0-8	7-15	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	1	5	56
	8-15	18-27	1.25-1.50	0.2-2	0.11-0.18	3.0-5.9	0.5-1.0	.20	.37			
	15-18	5-24	1.25-1.50	0.2-2	0.10-0.14	0.0-2.9	0.5-1.0	.17	.37			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			
Selah	0-16	10-18	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	16-23	24-35	1.30-1.55	0.2-0.6	0.12-0.16	3.0-5.9	0.5-1.0	.17	.28			
	23-31	5-24	1.30-1.55	0.2-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.37			
	31-35	---	---	0.0015-0.06	---	---	---	---	---			
	35-40	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	40-44	---	---	---	---	---	---	---	---			
393:												
Timentwa	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-27	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	27-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
394:												
Timentwa	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-27	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	27-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
395:												
Timentwa	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-27	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	27-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
396:												
Timentwa, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.37	.43	3	2	134
	6-22	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	22-37	5-12	1.15-1.40	2-6	0.10-0.16	0.0-2.9	0.5-1.0	.28	.37			
	37-50	5-12	1.15-1.40	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.28	.37			
	50-52	2-10	1.65-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	---	---	---	---	---	---	---	---			
Lickskillet	0-7	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	7-15	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	15-19	---	---	---	---	---	---	---	---			
Argabak	0-3	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	3-8	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	8-12	---	---	---	---	---	---	---	---			
397:												
Timentwa, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.37	.43	3	2	134
	6-24	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	24-44	5-12	1.15-1.40	2-6	0.10-0.16	0.0-2.9	0.5-1.0	.28	.37			
	44-57	2-10	1.65-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	57-60	---	---	---	---	---	---	---	---			
Lickskillet	0-6	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	6-12	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	12-18	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	18-22	---	---	---	---	---	---	---	---			
Argabak	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
398:												
Timentwa----------	0-7	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	7-36	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	36-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Siweeka----------	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
399:												
Timentwa----------	0-7	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	7-36	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	36-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Siweeka----------	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
400:												
Timentwa----------	0-7	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	7-36	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	36-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Siweeka----------	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Siweeka, bedrock substratum----------	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-29	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	29-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-48	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	48-52	---	---	---	---	---	---	---	---			
401:												
Timentwa----------	0-7	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	7-36	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	36-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Siweeka----------	0-9	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	3	2	134
	9-16	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.37	.43			
	16-27	3-12	1.10-1.35	2-6	0.12-0.20	0.0-2.9	1.0-2.0	.17	.37			
	27-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.37			
Brazlan----------	0-5	5-12	1.10-1.35	2-6	0.13-0.18	0.0-2.9	2.0-3.0	.20	.43	2	3	86
	5-13	5-14	1.10-1.35	0.6-2	0.09-0.15	0.0-2.9	1.0-3.0	.10	.37			
	13-20	5-10	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.5-1.0	.10	.32			
	20-25	2-10	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.20			
	25-29	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
402:												
Timentwa	0-8	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	8-29	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	29-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
Siweeka	0-15	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	3	2	134
	15-21	4-12	1.10-1.35	2-6	0.10-0.18	0.0-2.9	1.0-2.0	.17	.43			
	21-36	5-10	1.40-1.50	2-6	0.07-0.12	0.0-2.9	0.5-1.0	.10	.43			
	36-42	---	---	0.0015-0.06	---	---	---	---	---			
	42-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Dezellem	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
403:												
Timmerman	0-9	3-6	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24	3	3	86
	9-20	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.0-0.5	.20	.20			
	20-60	0-5	1.40-1.60	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.28	.28			
404:												
Timmerman	0-9	3-6	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24	3	3	86
	9-20	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.0-0.5	.20	.20			
	20-60	0-5	1.40-1.60	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.28	.28			
405:												
Timmerman	0-9	3-6	1.20-1.40	2-6	0.10-0.13	0.0-2.9	0.5-1.0	.24	.24	3	3	86
	9-20	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.0-0.5	.20	.20			
	20-60	0-5	1.40-1.60	20-20	0.03-0.06	0.0-2.9	0.0-0.5	.28	.28			
406:												
Titchenal	0-10	7-15	1.25-1.45	0.6-2	0.18-0.23	0.0-2.9	2.0-3.0	.43	.43	4	5	56
	10-20	7-15	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	1.0-2.0	.49	.49			
	20-57	10-18	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	0.5-1.0	.49	.49			
	57-60	---	---	0.0015-0.06	---	---	---	---	---			
407:												
Titchenal	0-10	7-15	1.25-1.45	0.6-2	0.18-0.23	0.0-2.9	2.0-3.0	.43	.43	4	5	56
	10-20	7-15	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	1.0-2.0	.49	.49			
	20-57	10-18	1.30-1.60	0.6-2	0.17-0.22	0.0-2.9	0.5-1.0	.49	.49			
	57-60	---	---	0.0015-0.06	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
408:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
409:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-42	---	---	---	---	---	---	---	---			
410:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-42	---	---	---	---	---	---	---	---			
411:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
412:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
413:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
414:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
415:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
416:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
Corbaley	0-4	3-10	1.10-1.35	2-6	0.13-0.20	0.0-2.9	1.0-2.0	.17	.32	1	3	86
	4-12	10-16	1.10-1.35	2-6	0.09-0.15	0.0-2.9	1.0-2.0	.10	.32			
	12-22	---	---	---	---	---	---	---	---			
417:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
Corbaley	0-4	3-10	1.10-1.35	2-6	0.13-0.20	0.0-2.9	1.0-2.0	.17	.32	1	3	86
	4-12	10-16	1.10-1.35	2-6	0.09-0.15	0.0-2.9	1.0-2.0	.10	.32			
	12-22	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
418:												
Toler----------	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
Corbaley----------	0-4	3-10	1.10-1.35	2-6	0.13-0.20	0.0-2.9	1.0-2.0	.17	.32	1	3	86
	4-12	10-16	1.10-1.35	2-6	0.09-0.15	0.0-2.9	1.0-2.0	.10	.32			
	12-22	---	---	---	---	---	---	---	---			
419:												
Toler----------	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat----------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
420:												
Toler----------	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat----------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
421:												
Toler----------	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat----------	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
422:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
423:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
424:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
424:												
Ralls, bedrock substratum	0-10	7-14	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	5	56
	10-20	10-18	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.43			
	20-32	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.43			
	32-52	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
	52-56	---	---	---	---	---	---	---	---			
425:												
Toler	0-10	5-12	1.10-1.35	0.6-2	0.22-0.28	0.0-2.9	1.0-2.0	.49	.49	2	4	86
	10-14	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	14-26	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	26-36	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	36-40	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Ralls, bedrock substratum	0-10	7-14	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	5	56
	10-20	10-18	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.43			
	20-32	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.43			
	32-52	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
	52-56	---	---	---	---	---	---	---	---			
426:												
Toler	0-13	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	13-22	10-18	1.30-1.60	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.49	.49			
	22-30	18-30	1.30-1.60	0.6-2	0.10-0.18	3.0-5.9	0.0-0.5	.43	.49			
	30-32	22-35	1.30-1.60	0.6-2	0.07-0.16	3.0-5.9	0.0-0.5	.37	.49			
	32-36	---	---	---	---	---	---	---	---			
Kester	0-10	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	10-25	3-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	25-32	2-9	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.37			
	32-42	---	---	---	---	---	---	---	---			
427:												
Torriorthents	0-10	3-8	1.15-1.35	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.20	.37	2	4	86
	10-60	0-5	1.40-1.65	20-20	0.01-0.02	0.0-2.9	0.0-0.5	.02	.10			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
428:												
Touhey----------	0-12	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	12-24	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	24-38	6-12	1.50-1.80	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
	38-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
429:												
Touhey----------	0-12	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	12-24	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	24-38	6-12	1.50-1.80	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
	38-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
430:												
Touhey----------	0-12	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	12-24	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	24-38	6-12	1.50-1.80	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
	38-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
431:												
Touhey----------	0-15	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	15-31	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	31-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
432:												
Touhey----------	0-15	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	15-31	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	31-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
433:												
Touhey----------	0-15	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	15-38	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.37			
	38-40	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	40-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
434:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Argabak----------	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
435:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Argabak----------	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
436:												
Touhey, bedrock substratum	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Argabak	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
437:												
Touhey, bedrock substratum	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Lickskillet	0-5	12-18	1.25-1.45	0.6-2	0.08-0.13	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	16-25	1.30-1.55	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.15	.37			
	9-14	18-27	1.30-1.55	0.6-2	0.07-0.12	3.0-5.9	0.5-1.0	.15	.37			
	14-18	---	---	---	---	---	---	---	---			
Argabak	0-2	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	2-10	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	10-14	---	---	---	---	---	---	---	---			
438:												
Touhey, bedrock substratum	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
438:												
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
439:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
440:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
441:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
441:												
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
Stubblefield, extremely bouldery---	0-9	5-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	1.0-2.0	.15	.37	3	8	0
	9-20	7-14	1.30-1.55	2-6	0.05-0.11	0.0-2.9	0.5-1.0	.20	.43			
	20-34	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	34-40	---	---	0.0015-0.06	---	---	---	---	---			
	40-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
442:												
Touhey, bedrock substratum----------	0-9	4-10	1.10-1.50	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.32	.43	3	2	134
	9-16	3-11	1.30-1.50	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.20	.37			
	16-21	5-10	1.35-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.20	.37			
	21-23	2-10	1.60-1.84	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	23-42	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	42-52	---	---	---	---	---	---	---	---			
Stubblefield----------	0-10	5-14	1.30-1.55	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.15	.37	3	5	56
	10-16	7-14	1.30-1.55	2-6	0.05-0.10	0.0-2.9	0.5-1.0	.20	.43			
	16-30	7-14	1.30-1.55	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.20	.43			
	30-38	---	---	0.0015-0.06	---	---	---	---	---			
	38-60	7-18	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.20	.37			
Tagear----------	0-13	4-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	4	2	134
	13-34	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.43	.43			
	34-39	5-12	1.25-1.45	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.32			
	39-49	5-12	1.25-1.45	2-6	0.03-0.08	0.0-2.9	0.0-0.5	.10	.28			
	49-52	2-10	1.50-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
	52-60	3-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.28			
443:												
Tubspring----------	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	12-20	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	20-31	2-8	1.30-1.55	6-20	0.09-0.17	0.0-2.9	0.0-0.5	.10	.28			
	31-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
444:												
Tubspring----------	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	12-20	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	20-31	2-8	1.30-1.55	6-20	0.09-0.17	0.0-2.9	0.0-0.5	.10	.28			
	31-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
445:												
Tubspring----------	0-9	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.37	.37	2	2	134
	9-14	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.24	.37			
	14-18	1-5	1.30-1.55	6-20	0.05-0.08	0.0-2.9	0.0-0.5	.15	.28			
	18-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
446:												
Tubspring----------	0-12	3-10	1.20-1.45	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.32	.37	3	2	134
	12-20	2-10	1.20-1.45	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.43	.43			
	20-31	2-8	1.30-1.55	6-20	0.09-0.17	0.0-2.9	0.0-0.5	.10	.28			
	31-60	1-4	1.40-1.65	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.24			
DelRio----------	0-13	3-10	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.43	.43	4	2	134
	13-45	2-11	1.10-1.35	2-6	0.14-0.24	0.0-2.9	0.5-1.0	.49	.49			
	45-60	4-6	1.55-1.65	6-20	0.08-0.13	0.0-2.9	0.0-0.5	.20	.20			
Strat----------	0-9	5-10	1.20-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.24	.49	3	4	86
	9-20	5-10	1.30-1.45	0.6-6	0.06-0.11	0.0-2.9	0.5-1.0	.15	.49			
	20-60	1-3	1.50-1.65	20-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.32			
447:												
Van Nostern----------	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			
448:												
Van Nostern----------	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			
449:												
Van Nostern----------	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
450:												
Van Nostern	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
451:												
Van Nostern	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
452:												
Van Nostern	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			
Camaspatch	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
453:												
Van Nostern	0-16	10-16	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.43	.43	2	5	56
	16-28	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.49	.49			
	28-38	18-27	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.49	.49			
	38-48	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
453:												
Camaspatch----------	0-7	20-25	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.20	.43	1	8	0
	7-10	27-35	1.20-1.30	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.20	.32			
	10-18	40-50	1.20-1.35	0.06-0.2	0.03-0.05	3.0-5.9	0.5-1.0	.17	.24			
	18-28	---	---	---	---	---	---	---	---			
454:												
Vitrandic Argixerolls	0-4	5-13	1.10-1.35	0.6-2	0.21-0.28	0.0-2.9	1.0-3.0	.43	.43	3	4	86
	4-25	6-14	1.10-1.35	0.6-2	0.18-0.26	0.0-2.9	0.5-2.0	.43	.43			
	25-31	6-14	1.15-1.40	0.6-2	0.15-0.24	0.0-2.9	0.5-1.0	.28	.49			
	31-37	14-27	1.20-1.50	0.6-2	0.09-0.17	3.0-5.9	0.0-1.0	.24	.49			
	37-57	27-50	1.20-1.55	0.06-0.6	0.06-0.13	6.0-8.9	0.0-0.5	.10	.43			
	57-67	---	---	---	---	---	---	---	---			
Vitrandic Argixerolls, stony----------	0-4	5-13	1.10-1.35	2-6	0.11-0.20	0.0-2.9	1.0-3.0	.17	.37	3	4	86
	4-11	6-14	1.10-1.35	0.6-6	0.10-0.24	0.0-2.9	1.0-2.0	.28	.43			
	11-16	14-27	1.20-1.50	0.6-2	0.09-0.14	3.0-5.9	0.5-1.0	.20	.49			
	16-53	20-40	1.20-1.50	0.2-6	0.08-0.14	3.0-5.9	0.0-0.5	.15	.43			
	53-58	20-45	1.20-1.55	0.2-6	0.08-0.13	3.0-5.9	0.0-0.5	.15	.43			
	58-68	---	---	---	---	---	---	---	---			
Argabak----------	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
455:												
Warden----------	0-10	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	5	3	86
	10-30	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	30-60	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
456:												
Watco----------	0-6	6-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	4	2	134
	6-22	7-13	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.43			
	22-42	7-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.43			
	42-58	5-9	1.20-1.45	0.2-0.6	0.09-0.11	0.0-2.9	0.0-0.5	.15	.32			
	58-60	5-9	1.70-2.00	0.06-0.2	0.02-0.04	0.0-2.9	0.0-0.5	.15	.32			
457:												
Watco----------	0-4	5-10	1.10-1.35	2-6	0.05-0.10	0.0-2.9	2.0-3.0	.20	.43	4	4	86
	4-13	7-13	1.10-1.35	2-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	13-47	7-13	1.10-1.35	2-6	0.14-0.23	0.0-2.9	0.5-1.0	.37	.43			
	47-60	5-10	1.40-1.55	2-6	0.05-0.07	0.0-2.9	0.0-0.5	.10	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
457:												
Dezellem	0-4	5-12	1.10-1.35	2-6	0.09-0.14	0.0-2.9	1.0-3.0	.15	.37	5	4	86
	4-18	5-14	1.10-1.35	2-6	0.10-0.17	0.0-2.9	1.0-2.0	.24	.43			
	18-24	4-8	1.40-1.50	0.6-6	0.07-0.14	0.0-2.9	1.0-2.0	.10	.37			
	24-36	4-8	1.50-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.43			
	36-60	4-8	1.50-1.60	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.05	.32			
Timentwa	0-7	4-10	1.15-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.43	4	2	134
	7-36	4-12	1.15-1.35	0.6-6	0.14-0.23	0.0-2.9	1.0-2.0	.37	.43			
	36-51	5-12	1.25-1.40	0.6-6	0.07-0.14	0.0-2.9	0.5-1.0	.28	.37			
	51-52	2-10	1.50-1.75	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	52-60	5-14	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.15	.32			
458:												
Water	---	---	---	---	---	---	---	---	---	---	---	---
459:												
Waterflat	0-10	4-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	5	2	134
	10-30	4-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	1.0-3.0	.43	.43			
	30-43	3-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.49	.49			
	43-60	3-30	1.20-1.60	0.2-20	0.05-0.21	3.0-5.9	0.0-0.5	.43	.43			
460:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
461:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
462:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
463:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
464:												
Wellsdam	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	6-18	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	18-38	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	38-54	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	54-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
Couleedam	0-4	5-15	1.40-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.17	.32	1	5	56
	4-9	5-15	1.40-1.55	2-6	0.05-0.08	0.0-2.9	1.0-2.0	.17	.32			
	9-16	5-15	1.45-1.60	2-6	0.04-0.08	0.0-2.9	0.5-1.0	.15	.32			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
465:												
Wellsdam	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	6-18	3-11	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43			
	18-38	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	38-54	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	54-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
Couleedam	0-4	5-15	1.40-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.17	.32	1	5	56
	4-9	5-15	1.40-1.55	2-6	0.05-0.08	0.0-2.9	1.0-2.0	.17	.32			
	9-16	5-15	1.45-1.60	2-6	0.04-0.08	0.0-2.9	0.5-1.0	.15	.32			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
466:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
Peshastin	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
467:												
Wellsdam	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
467:												
Peshastin----------	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
468:												
Wellsdam----------	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	3	2	134
	10-27	3-11	1.10-1.35	2-6	0.12-0.22	0.0-2.9	0.5-1.0	.37	.43			
	27-30	2-10	1.60-1.85	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
	30-60	5-10	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.28	.37			
Peshastin----------	0-12	5-10	1.15-1.35	2-6	0.15-0.18	0.0-2.9	1.0-2.0	.32	.43	3	3	86
	12-22	6-12	1.15-1.35	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.24	.32			
	22-60	5-10	1.20-1.45	2-6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.37			
469:												
Whiteye----------	0-7	5-12	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	1	2	134
	7-18	10-18	1.30-1.55	0.6-2	0.14-0.21	0.0-2.9	0.5-1.0	.49	.49			
	18-22	---	---	0.0015-0.06	---	---	---	---	---			
	22-27	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	27-37	---	---	---	---	---	---	---	---			
470:												
Willis----------	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			
471:												
Willis----------	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			
472:												
Willis----------	0-9	5-10	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	9-17	10-15	1.30-1.45	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	17-30	10-15	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	30-34	---	---	0.0015-0.06	---	---	---	---	---			
	34-39	5-12	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.1	.28	.49			
	39-49	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
473:												
Willock----------	0-8	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	4	2	134
	8-23	4-12	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	1.0-3.0	.37	.37			
	23-34	7-15	1.30-1.50	0.6-2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.37			
	34-43	5-12	1.30-1.50	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.32			
	43-60	5-12	1.70-2.00	0.06-0.2	0.03-0.08	0.0-2.9	0.0-0.5	.24	.28			
474:												
Willock----------	0-8	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-3.0	.37	.37	4	2	134
	8-23	4-12	1.10-1.35	0.6-2	0.15-0.24	0.0-2.9	1.0-3.0	.37	.37			
	23-34	7-15	1.30-1.50	0.6-2	0.12-0.17	0.0-2.9	0.5-1.0	.28	.37			
	34-43	5-12	1.30-1.50	2-6	0.09-0.14	0.0-2.9	0.0-0.5	.24	.32			
	43-60	5-12	1.70-2.00	0.06-0.2	0.03-0.08	0.0-2.9	0.0-0.5	.24	.28			
475:												
Willock, cemented substratum----------	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Willock, bedrock substratum----------	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	3	2	134
	6-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-41	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	41-55	---	---	---	---	---	---	---	---			
	55-60	---	---	---	---	---	---	---	---			
476:												
Willock, cemented substratum----------	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
476:												
Willock, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	3	2	134
	6-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-41	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	41-55	---	---	---	---	---	---	---	---			
	55-60	---	---	---	---	---	---	---	---			
477:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Willock, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	3	2	134
	6-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-41	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	41-55	---	---	---	---	---	---	---	---			
	55-60	---	---	---	---	---	---	---	---			
478:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
479:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
480:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Conconully, bedrock substratum	0-6	4-10	1.10-1.35	2-6	0.14-0.20	0.0-2.9	1.0-3.0	.24	.32	3	2	134
	6-12	4-12	1.10-1.35	2-6	0.13-0.23	0.0-2.9	1.0-2.0	.24	.32			
	12-25	5-12	1.20-1.45	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.24	.32			
	25-35	4-12	1.30-1.55	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.28			
	35-50	4-14	1.70-2.00	0.06-0.2	0.02-0.06	0.0-2.9	0.0-0.5	.20	.28			
	50-60	---	---	---	---	---	---	---	---			
481:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
481:												
Watco	0-5	6-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	4	2	134
	5-18	7-13	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.43			
	18-42	7-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.43			
	42-58	5-9	1.20-1.45	0.2-0.6	0.09-0.11	0.0-2.9	0.0-0.5	.15	.32			
	58-60	5-9	1.70-2.00	0.06-0.2	0.02-0.04	0.0-2.9	0.0-0.5	.15	.32			
482:												
Willock, cemented substratum	0-10	4-10	1.10-1.35	2-6	0.16-0.23	0.0-2.9	2.0-3.0	.28	.32	4	2	134
	10-20	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.28	.32			
	20-30	3-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.0-0.5	.32	.37			
	30-42	6-12	1.35-1.50	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.15	.37			
	42-46	2-10	1.65-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
	46-60	5-12	1.70-2.00	0.06-0.2	---	0.0-2.9	0.0-0.5	.10	.32			
Watco	0-5	6-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.37	.43	4	2	134
	5-18	7-13	1.10-1.35	2-6	0.16-0.23	0.0-2.9	0.5-1.0	.37	.43			
	18-42	7-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.0-0.5	.37	.43			
	42-58	5-9	1.20-1.45	0.2-0.6	0.09-0.11	0.0-2.9	0.0-0.5	.15	.32			
	58-60	5-9	1.70-2.00	0.06-0.2	0.02-0.04	0.0-2.9	0.0-0.5	.15	.32			
483:												
Winblow	0-7	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	7-16	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.43	.43			
	16-22	3-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.43	.43			
	22-28	3-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.5-1.0	.37	.43			
	28-30	3-13	1.15-1.40	0.6-2	0.17-0.25	0.0-2.9	0.0-0.5	.49	.55			
	30-40	---	---	---	---	---	---	---	---			
484:												
Winblow	0-7	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	7-16	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.43	.43			
	16-22	3-13	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.43	.43			
	22-28	3-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.5-1.0	.37	.43			
	28-30	3-13	1.15-1.40	0.6-2	0.17-0.25	0.0-2.9	0.0-0.5	.49	.55			
	30-40	---	---	---	---	---	---	---	---			
485:												
Winblow	0-6	4-11	1.10-1.35	2-6	0.17-0.23	0.0-2.9	1.0-2.0	.43	.43	2	2	134
	6-10	4-12	1.10-1.35	2-6	0.16-0.23	0.0-2.9	1.0-2.0	.43	.43			
	10-39	3-13	1.10-1.35	2-6	0.13-0.23	0.0-2.9	0.5-1.0	.37	.43			
	39-49	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
485:												
Argabak	0-4	12-18	1.20-1.45	0.6-2	0.05-0.07	0.0-2.9	1.0-2.0	.15	.37	1	8	0
	4-7	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	7-11	---	---	---	---	---	---	---	---			
Horseflat	0-6	7-14	1.20-1.35	2-6	0.06-0.10	0.0-2.9	1.0-2.0	.10	.32	1	5	56
	6-17	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	17-27	---	---	---	---	---	---	---	---			
486:												
Xerofluvents	0-6	1-5	1.35-1.60	6-20	0.02-0.03	0.0-2.9	0.5-1.0	.05	.20	5	5	56
	6-60	0-5	1.40-1.65	20-20	0.01-0.02	0.0-2.9	0.0-0.5	.02	.10			
Beverly	0-5	5-10	1.20-1.40	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.20	.28	3	4	86
	5-20	4-8	1.35-1.55	2-6	0.07-0.12	0.0-2.9	0.0-0.5	.15	.32			
	20-60	0-5	1.40-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.02	.20			
487:												
Zeemal	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.49	.49	2	2	134
	8-12	5-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.55	.55			
	12-17	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	17-33	10-24	1.40-1.55	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
	33-60	14-35	1.40-1.55	0.2-0.6	---	0.0-2.9	0.0-0.5	.55	.55			
488:												
Zeemal	0-8	4-13	1.10-1.35	2-6	0.17-0.23	0.0-2.9	0.5-1.0	.49	.49	2	2	134
	8-12	5-14	1.10-1.35	0.6-2	0.18-0.25	0.0-2.9	0.5-1.0	.55	.55			
	12-17	5-15	1.60-1.80	0.06-0.2	---	0.0-2.9	0.0-0.5	.37	.43			
	17-33	10-24	1.40-1.55	0.6-2	---	0.0-2.9	0.0-0.5	.55	.55			
	33-60	14-35	1.40-1.55	0.2-0.6	---	0.0-2.9	0.0-0.5	.55	.55			
489:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
490:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
491:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
492:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
493:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
Argabak	0-5	12-18	1.20-1.45	0.6-2	0.06-0.12	0.0-2.9	1.0-2.0	.15	.37	1	7	38
	5-9	18-35	1.30-1.55	0.2-2	0.06-0.14	3.0-5.9	1.0-2.0	.10	.32			
	9-13	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
494:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
495:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
495:												
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
496:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Benwy	0-6	7-12	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	6-12	8-14	1.20-1.45	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.49	.49			
	12-29	10-18	1.30-1.55	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.55	.55			
	29-44	25-35	1.30-1.55	0.2-0.6	0.14-0.19	3.0-5.9	0.0-0.5	.32	.43			
	44-47	---	---	0.0015-0.06	---	---	---	---	---			
	47-57	---	---	---	---	---	---	---	---			
497:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Ralls, bedrock substratum	0-10	7-14	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	5	56
	10-20	10-18	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.43			
	20-32	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.43			
	32-52	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
	52-56	---	---	---	---	---	---	---	---			

Table 7.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
498:												
Zen	0-15	8-15	1.20-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	15-27	18-28	1.25-1.35	0.6-2	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	27-36	18-35	1.25-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.49	.49			
	36-46	---	---	---	---	---	---	---	---			
Horseflat	0-8	8-15	1.25-1.35	0.6-2	0.08-0.12	0.0-2.9	1.0-2.0	.10	.37	1	7	38
	8-13	14-22	1.30-1.40	0.6-2	0.05-0.11	0.0-2.9	0.5-1.0	.15	.37			
	13-16	20-35	1.40-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.5-1.0	.10	.28			
	16-26	---	---	---	---	---	---	---	---			
Ralls, bedrock substratum	0-10	7-14	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.37	.43	3	5	56
	10-20	10-18	1.25-1.45	0.6-2	0.12-0.14	0.0-2.9	0.5-1.0	.20	.43			
	20-32	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.20	.43			
	32-52	18-30	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
	52-56	---	---	---	---	---	---	---	---			
499:												
Zen	0-13	12-18	1.20-1.25	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	13-24	22-28	1.25-1.30	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.49	.49			
	24-28	22-28	1.30-1.50	0.2-0.6	0.14-0.19	3.0-5.9	0.5-1.0	.49	.49			
	28-38	---	---	---	---	---	---	---	---			
Lickskillet	0-4	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.17	.32	1	7	38
	4-15	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.0-1.0	.20	.32			
	15-19	---	---	---	---	---	---	---	---			
Ralls	0-13	6-10	1.15-1.35	0.6-2	0.14-0.16	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	13-44	18-30	1.25-1.45	0.2-0.6	0.12-0.14	3.0-5.9	0.5-1.0	.20	.43			
	44-60	16-35	1.25-1.45	0.6-2	0.12-0.14	3.0-5.9	0.0-0.5	.15	.49			
500:												
Pits	---	---	---	---	---	---	---	---	---	---	---	---

Table 8.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
1:						
Aarup----------	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0	0.0-2.0	0
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
2:						
Aarup----------	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0	0.0-2.0	0
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
3:						
Aarup----------	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0	0.0-2.0	0
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
Aarup, eroded--------	0-6	4.0-12	7.9-8.4	0	0.0-2.0	0
	6-20	---	---	---	---	---
	20-30	---	---	---	---	---
4:						
Achelake----------	0-5	4.0-15	5.6-7.8	0	0.0-2.0	0
	5-20	4.0-14	6.6-8.4	0	0.0-2.0	0
	20-60	3.0-12	7.4-8.4	0	0.0-2.0	0
5:						
Aeneas----------	0-10	4.0-10	6.1-7.8	0	0.0-2.0	0
	10-24	4.0-10	6.6-7.8	0	0.0-2.0	0
	24-30	2.0-4.0	6.6-7.8	0	0.0-2.0	0
	30-60	0.0-2.0	6.6-7.8	0	0.0-2.0	0
6:						
Alecanyon----------	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
7:						
Alecanyon----------	0-9	3.0-13	6.6-7.3	0	0.0-2.0	0
	9-12	2.0-11	6.6-7.3	0	0.0-2.0	0
	12-20	1.0-4.0	6.6-7.3	0	0.0-2.0	0
	20-60	1.0-4.0	6.6-7.3	0	0.0-2.0	0
8:						
Alecanyon----------	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
Cachebutte----------	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
9:						
Alecanyon----------	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
Cachebutte----------	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
10:						
Alecanyon	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
Cachebutte	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
Nemire	0-24	3.0-13	5.6-7.8	0	0.0-2.0	0
	24-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
11:						
Alsash	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-11	5.0-14	6.6-7.3	0	0.0-2.0	0
	11-28	11-16	6.6-7.8	0	0.0-2.0	0
	28-60	3.0-7.0	7.4-9.0	1-8	0.0-2.0	1-8
12:						
Alsash	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-11	5.0-14	6.6-7.3	0	0.0-2.0	0
	11-28	11-16	6.6-7.8	0	0.0-2.0	0
	28-60	3.0-7.0	7.4-9.0	1-8	0.0-2.0	1-8
Slusser, indurated substratum	0-6	5.0-13	5.6-7.3	0	0.0-2.0	0
	6-11	5.0-14	6.6-7.8	0	0.0-2.0	0
	11-28	7.0-16	6.6-7.8	0	0.0-2.0	0
	28-41	7.0-16	7.4-8.4	0-1	0.0-2.0	0
	41-45	---	---	---	---	---
	45-50	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	50-60	---	---	---	---	---
13:						
Alsash	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-11	5.0-14	6.6-7.3	0	0.0-2.0	0
	11-28	11-16	6.6-7.8	0	0.0-2.0	0
	28-60	3.0-7.0	7.4-9.0	1-8	0.0-2.0	1-8
Slusser, indurated substratum	0-6	5.0-13	5.6-7.3	0	0.0-2.0	0
	6-11	5.0-14	6.6-7.8	0	0.0-2.0	0
	11-28	7.0-16	6.6-7.8	0	0.0-2.0	0
	28-41	7.0-16	7.4-8.4	0-1	0.0-2.0	0
	41-45	---	---	---	---	---
	45-50	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	50-60	---	---	---	---	---
14:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
15:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
16:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Cheviot	0-10	6.0-18	6.6-7.8	0	0.0-2.0	0
	10-32	6.0-16	6.6-7.8	0	0.0-2.0	0
	32-60	6.0-16	6.6-7.8	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
17:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-18	6.0-15	6.1-7.3	0	0.0-2.0	0
	18-49	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	49-60	---	---	---	---	---
18:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-18	6.0-15	6.1-7.3	0	0.0-2.0	0
	18-49	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	49-60	---	---	---	---	---
19:						
Aquolls	0-28	11-20	7.4-8.4	0-10	0.0-2.0	0-5
	28-37	5.0-20	7.4-8.4	0-10	0.0-2.0	0-5
	37-49	4.0-18	7.4-8.4	0-10	0.0-2.0	0-5
	49-60	9.0-32	6.6-7.3	0-10	0.0-2.0	0
20:						
Aquolls	0-28	11-20	7.4-8.4	0-10	0.0-2.0	0-5
	28-37	5.0-20	7.4-8.4	0-10	0.0-2.0	0-5
	37-49	4.0-18	7.4-8.4	0-10	0.0-2.0	0-5
	49-60	9.0-32	6.6-7.3	0-10	0.0-2.0	0
Halaquepts, cemented substratum	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
21:						
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
22:						
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
23:						
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
23:						
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
24:						
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
Haploxerolls, wet	0-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-25	5.0-20	6.6-8.4	0-8	0.0-4.0	0
	25-41	4.0-18	6.6-8.4	0-8	0.0-4.0	0
	41-60	5.0-16	6.6-8.4	0-8	0.0-4.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
25:						
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
26:						
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-36	---	---	---	---	---
27:						
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
28:						
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
28:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
29:						
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
Nemire, moist	0-10	3.0-13	5.6-7.8	0	0.0-2.0	0
	10-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
Siweeka, bedrock substratum	0-13	4.0-13	5.6-7.8	0	0.0-2.0	0
	13-27	4.0-13	6.6-8.4	0	0.0-2.0	0
	27-39	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	39-43	---	---	---	---	---
	43-47	---	---	---	---	---
30:						
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
31:						
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
Tagear, bedrock substratum	0-7	4.0-11	6.6-7.8	0	0	0
	7-19	3.0-10	7.4-8.4	0	0.0-2.0	0
	19-31	3.0-10	7.4-8.4	1-8	0.0-2.0	0
	31-44	4.0-11	7.9-9.0	1-10	0.0-2.0	1-8
	44-58	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	58-68	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
32:						
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
Timentwa, bedrock substratum	0-6	4.0-13	6.6-7.3	0	0.0-2.0	0
	6-22	4.0-13	6.6-7.8	0	0.0-2.0	0
	22-37	4.0-11	7.4-8.4	1-5	0.0-2.0	0
	37-50	3.0-11	7.4-8.4	1-5	0.0-2.0	0
	50-52	1.0-9.0	7.4-8.4	1-5	0.0-2.0	0
	52-60	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
33:						
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
Timentwa, bedrock substratum	0-6	4.0-13	6.6-7.3	0	0.0-2.0	0
	6-24	4.0-13	6.6-7.8	0	0.0-2.0	0
	24-50	4.0-11	7.4-8.4	1-5	0.0-2.0	0
	50-52	1.0-9.0	7.4-8.4	1-5	0.0-2.0	0
	52-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
33:						
Rock outcrop	0-60	---	---	---	---	---
34:						
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
Winblow	0-6	4.0-12	5.6-7.8	0	0.0-2.0	0
	6-10	4.0-11	6.6-8.4	0-3	0.0-2.0	0
	10-39	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	39-49	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
35:						
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
36:						
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
37:						
Badge	0-9	3.0-10	6.6-7.8	0	0.0-2.0	0
	9-16	3.0-8.0	6.6-7.8	0	0.0-2.0	0
	16-33	7.0-11	6.6-7.8	0	0.0-2.0	0
	33-60	3.0-8.0	7.4-8.4	0	0.0-2.0	0
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
38:						
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
Dougville, cemented substratum	0-12	5.0-16	5.6-7.8	0	0.0-2.0	0
	12-22	5.0-15	6.6-7.8	0	0.0-2.0	0
	22-38	5.0-15	6.6-7.8	0	0.0-2.0	0
	38-46	6.0-16	7.4-8.4	0	0.0-2.0	0
	46-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
39:						
Badge	0-6	7.0-16	6.6-7.8	0	0.0-2.0	0
	6-24	7.0-18	6.6-7.8	0	0.0-2.0	0
	24-60	15-20	7.4-8.4	0	0.0-2.0	0
Stemilt	0-10	7.0-16	6.6-7.3	0	0.0-2.0	0
	10-20	10-28	6.6-7.3	0	0.0-2.0	0
	20-38	20-32	6.6-7.3	0	0.0-2.0	0
	38-60	20-32	6.6-7.3	0	0.0-2.0	0
40:						
Badge	0-6	7.0-16	6.6-7.8	0	0.0-2.0	0
	6-24	7.0-18	6.6-7.8	0	0.0-2.0	0
	24-60	15-20	7.4-8.4	0	0.0-2.0	0
Stemilt	0-10	7.0-16	6.6-7.3	0	0.0-2.0	0
	10-20	10-28	6.6-7.3	0	0.0-2.0	0
	20-38	20-32	6.6-7.3	0	0.0-2.0	0
	38-60	20-32	6.6-7.3	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
41:						
Bagdad	0-10	6.0-12	5.6-7.3	0	0.0-2.0	0
	10-14	6.0-15	6.6-7.8	0	0.0-2.0	0
	14-24	7.0-18	6.6-7.8	0	0.0-2.0	0
	24-40	7.0-17	6.6-7.8	0	0.0-2.0	0
	40-60	5.0-16	7.4-9.0	1-10	0.0-2.0	1-8
42:						
Bagdad	0-8	6.0-12	5.6-7.3	0	0.0-2.0	0
	8-13	6.0-15	6.6-7.8	0	0.0-2.0	0
	13-42	7.0-18	6.6-7.8	0	0.0-2.0	0
	42-58	5.0-16	7.4-8.4	1-10	0.0-2.0	0-2
	58-60	3.0-13	7.9-9.0	1-10	0.0-2.0	1-8
43:						
Bagdad	0-8	6.0-12	5.6-7.3	0	0.0-2.0	0
	8-13	6.0-15	6.6-7.8	0	0.0-2.0	0
	13-42	7.0-18	6.6-7.8	0	0.0-2.0	0
	42-58	5.0-16	7.4-8.4	1-10	0.0-2.0	0-2
	58-60	3.0-13	7.9-9.0	1-10	0.0-2.0	1-8
44:						
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
45:						
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
Lickskillet	0-4	5.0-15	6.1-7.3	0	0	0
	4-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Zen	0-13	10-20	6.1-7.8	0	0.0-2.0	0
	13-24	10-20	6.6-8.4	0	0.0-2.0	0
	24-28	10-20	7.4-9.0	2-10	0.0-2.0	1-8
	28-38	---	---	---	---	---
46:						
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
Roloff	0-11	5.0-18	6.6-7.8	0	0.0-2.0	0
	11-17	5.0-18	6.6-7.8	0	0.0-2.0	0
	17-29	5.0-18	7.4-9.0	0	0.0-2.0	0
	29-33	---	---	---	---	---
47:						
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
Touhey	0-15	4.0-11	6.6-7.8	0	0.0-2.0	0
	15-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-38	4.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	38-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
48:						
Beca	0-8	5.0-16	5.6-7.3	0	0.0-2.0	0
	8-23	5.0-15	6.1-7.3	0	0.0-2.0	0
	23-31	7.0-17	6.6-7.8	0	0.0-2.0	0
	31-38	8.0-16	6.6-7.8	0	0.0-2.0	0
	38-42	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
49:						
Beca	0-8	5.0-16	5.6-7.3	0	0.0-2.0	0
	8-23	5.0-15	6.1-7.3	0	0.0-2.0	0
	23-31	7.0-17	6.6-7.8	0	0.0-2.0	0
	31-38	8.0-16	6.6-7.8	0	0.0-2.0	0
	38-42	---	---	---	---	---
50:						
Beca	0-8	5.0-16	5.6-7.3	0	0.0-2.0	0
	8-23	5.0-15	6.1-7.3	0	0.0-2.0	0
	23-31	7.0-17	6.6-7.8	0	0.0-2.0	0
	31-38	8.0-16	6.6-7.8	0	0.0-2.0	0
	38-42	---	---	---	---	---
51:						
Beca	0-8	5.0-16	5.6-7.3	0	0.0-2.0	0
	8-23	5.0-15	6.1-7.3	0	0.0-2.0	0
	23-31	7.0-17	6.6-7.8	0	0.0-2.0	0
	31-38	8.0-16	6.6-7.8	0	0.0-2.0	0
	38-42	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
52:						
Beca	0-8	5.0-16	5.6-7.3	0	0.0-2.0	0
	8-23	5.0-15	6.1-7.3	0	0.0-2.0	0
	23-31	7.0-17	6.6-7.8	0	0.0-2.0	0
	31-38	8.0-16	6.6-7.8	0	0.0-2.0	0
	38-42	---	---	---	---	---
Dougville, cemented substratum	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-13	6.6-7.8	0	0.0-2.0	0
	36-58	10-20	6.6-7.8	0	0.0-2.0	0
	58-60	10-20	7.9-8.4	0	0.0-2.0	0
Slickear	0-10	5.0-16	5.6-7.3	0	0.0-2.0	0
	10-22	5.0-15	7.4-7.8	0	0.0-2.0	0
	22-46	13-25	7.4-9.0	1-15	0.0-2.0	13-20
	46-50	---	---	---	---	---
	50-55	5.0-15	7.9-8.4	1-10	0.0-2.0	5-13
	55-59	---	---	---	---	---
53:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
54:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
55:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
55:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
56:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
57:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
Selah	0-16	7.0-20	5.6-7.3	0	0.0-2.0	0
	16-23	19-32	7.4-8.4	1-10	0.0-2.0	0
	23-31	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	31-35	---	---	---	---	---
	35-40	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	40-44	---	---	---	---	---
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
58:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
Selah	0-16	7.0-20	5.6-7.3	0	0.0-2.0	0
	16-23	19-32	7.4-8.4	1-10	0.0-2.0	0
	23-31	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	31-35	---	---	---	---	---
	35-40	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	40-44	---	---	---	---	---
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
59:						
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
59:						
Selah----------	0-16	7.0-20	5.6-7.3	0	0.0-2.0	0
	16-23	19-32	7.4-8.4	1-10	0.0-2.0	0
	23-31	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	31-35	---	---	---	---	---
	35-40	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	40-44	---	---	---	---	---
Alstown----------	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
60:						
Beverly----------	0-5	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	5-20	4.0-7.0	6.6-7.8	0	0.0-2.0	0
	20-60	0.0-4.0	6.6-7.8	0	0.0-2.0	0
61:						
Brays----------	0-10	4.0-12	6.6-7.8	0	0.0-2.0	0
	10-27	4.0-11	6.6-7.8	0	0.0-2.0	0
	27-35	3.0-12	6.6-7.8	0	0.0-2.0	0
	35-45	---	---	---	---	---
62:						
Brays----------	0-10	4.0-12	6.6-7.8	0	0.0-2.0	0
	10-27	4.0-11	6.6-7.8	0	0.0-2.0	0
	27-35	3.0-12	6.6-7.8	0	0.0-2.0	0
	35-45	---	---	---	---	---
Entiat----------	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-11	6.0-15	6.6-7.8	0	0.0-2.0	0
	11-17	6.0-13	6.6-7.8	0	0.0-2.0	0
	17-27	---	---	---	---	---
63:						
Brays----------	0-10	4.0-12	6.6-7.8	0	0.0-2.0	0
	10-27	4.0-11	6.6-7.8	0	0.0-2.0	0
	27-35	3.0-12	6.6-7.8	0	0.0-2.0	0
	35-45	---	---	---	---	---
Entiat----------	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-11	6.0-15	6.6-7.8	0	0.0-2.0	0
	11-17	6.0-13	6.6-7.8	0	0.0-2.0	0
	17-27	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
64:						
Broadax----------	0-8	6.0-20	5.6-7.3	0	0.0-2.0	0
	8-16	6.0-18	6.6-7.3	0	0.0-2.0	0
	16-26	16-24	6.6-7.8	0	0.0-2.0	0
	26-42	16-24	6.6-7.8	0	0.0-2.0	0
	42-54	16-24	7.4-8.4	1-10	0.0-2.0	0-5
	54-60	16-27	7.4-9.0	1-15	0.0-4.0	1-8
65:						
Broadax----------	0-8	6.0-20	5.6-7.3	0	0.0-2.0	0
	8-16	6.0-18	6.6-7.3	0	0.0-2.0	0
	16-26	16-24	6.6-7.8	0	0.0-2.0	0
	26-42	16-24	6.6-7.8	0	0.0-2.0	0
	42-54	16-24	7.4-8.4	1-10	0.0-2.0	0-5
	54-60	16-27	7.4-9.0	1-15	0.0-4.0	1-8
66:						
Broadax----------	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
67:						
Broadax	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
68:						
Broadax, bedrock substratum	0-9	6.0-20	5.6-7.3	0	0.0-2.0	0
	9-13	6.0-18	6.6-7.3	0	0.0-2.0	0
	13-31	10-20	7.4-8.4	0-10	0.0-2.0	0-5
	31-47	6.0-16	7.9-9.0	1-15	0.0-4.0	1-8
	47-57	---	---	---	---	---
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
Spofford	0-9	6.0-17	6.6-7.8	0	0.0-2.0	0
	9-21	14-29	8.5-9.6	1-5	2.0-4.0	13-20
	21-44	8.0-18	8.5-9.6	1-15	2.0-4.0	5-20
	44-53	---	---	---	---	---
	53-58	4.0-14	7.4-9.0	1-10	0.0-4.0	1-8
	58-62	---	---	---	---	---
69:						
Broadax, bedrock substratum	0-9	6.0-20	5.6-7.3	0	0.0-2.0	0
	9-13	6.0-18	6.6-7.3	0	0.0-2.0	0
	13-31	10-20	7.4-8.4	0-10	0.0-2.0	0-5
	31-47	6.0-16	7.9-9.0	1-15	0.0-4.0	1-8
	47-57	---	---	---	---	---
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
Spofford	0-9	6.0-17	6.6-7.8	0	0.0-2.0	0
	9-21	14-29	8.5-9.6	1-5	2.0-4.0	13-20
	21-44	8.0-18	8.5-9.6	1-15	2.0-4.0	5-20
	44-53	---	---	---	---	---
	53-58	4.0-14	7.4-9.0	1-10	0.0-4.0	1-8
	58-62	---	---	---	---	---
70:						
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
Titchenal	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-20	5.0-15	6.1-7.3	0	0.0-2.0	0
	20-57	7.0-16	6.6-7.8	0	0.0-2.0	0
	57-60	---	---	---	---	---
71:						
Burbank	0-6	0.0-5.0	7.4-8.4	0	0.0-2.0	0
	6-20	0.0-5.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-5.0	7.4-8.4	1-8	0.0-2.0	0-3
72:						
Burbank	0-6	0.0-5.0	7.4-8.4	0	0.0-2.0	0
	6-20	0.0-5.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-5.0	7.4-8.4	1-8	0.0-2.0	0-3

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
73:						
Burch----------	0-10	4.0-11	6.1-7.3	0	0.0-2.0	0
	10-38	7.0-16	6.6-7.8	0	0.0-2.0	0
	38-60	6.0-16	6.6-7.8	0-2	0.0-2.0	0
74:						
Burch----------	0-10	7.0-15	6.1-7.3	0	0.0-2.0	0
	10-30	7.0-16	6.6-7.8	0	0.0-2.0	0
	30-60	6.0-16	6.6-7.8	0-2	0.0-2.0	0
75:						
Burch----------	0-10	7.0-15	6.1-7.3	0	0.0-2.0	0
	10-30	7.0-16	6.6-7.8	0	0.0-2.0	0
	30-60	6.0-16	6.6-7.8	0-2	0.0-2.0	0
76:						
Cachebutte----------	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
77:						
Cachebutte----------	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
Alecanyon----------	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
Haploxerolls, wet----	0-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-25	5.0-20	6.6-8.4	0-8	0.0-4.0	0
	25-41	4.0-18	6.6-8.4	0-8	0.0-4.0	0
	41-60	5.0-16	6.6-8.4	0-8	0.0-4.0	0
78:						
Cachebutte----------	0-6	5.0-15	5.6-7.3	0	0.0-2.0	0
	6-22	2.0-11	6.1-7.3	0	0.0-2.0	0
	22-28	2.0-7.0	7.4-7.8	0	0.0-2.0	0
	28-34	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
	34-60	1.0-5.0	6.6-8.4	1-8	0.0-2.0	0-2
Nemire----------	0-24	3.0-13	5.6-7.8	0	0.0-2.0	0
	24-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
Alecanyon----------	0-12	3.0-13	6.1-7.3	0	0.0-2.0	0
	12-31	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
	31-60	1.0-4.0	6.6-7.8	0-3	0.0-2.0	0
79:						
Cashmere----------	0-11	4.0-11	6.1-7.8	0	0.0-2.0	0
	11-24	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-9.0	6.6-8.4	0-5	0.0-2.0	0-5
80:						
Cashmere----------	0-11	4.0-11	6.1-7.8	0	0.0-2.0	0
	11-24	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-9.0	6.6-8.4	0-5	0.0-2.0	0-5
81:						
Cashmere----------	0-11	4.0-11	6.1-7.8	0	0.0-2.0	0
	11-24	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-9.0	6.6-8.4	0-5	0.0-2.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
82:						
Cashmere	0-10	4.0-10	6.6-7.3	0	0.0-2.0	0
	10-44	2.0-6.0	6.6-7.3	0	0.0-2.0	0
	44-52	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0-5
	52-60	2.0-6.0	7.9-9.0	1-10	0.0-2.0	1-10
83:						
Cashmere	0-10	4.0-10	6.6-7.3	0	0.0-2.0	0
	10-44	2.0-6.0	6.6-7.3	0	0.0-2.0	0
	44-52	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0-5
	52-60	2.0-6.0	7.9-9.0	1-10	0.0-2.0	1-10
84:						
Cashmere	0-10	4.0-10	6.6-7.3	0	0.0-2.0	0
	10-44	2.0-6.0	6.6-7.3	0	0.0-2.0	0
	44-52	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0-5
	52-60	2.0-6.0	7.9-9.0	1-10	0.0-2.0	1-10
85:						
Cashmere, cemented substratum	0-10	4.0-10	6.6-7.3	0	0.0-2.0	0
	10-44	2.0-6.0	6.6-7.3	0	0.0-2.0	0
	44-52	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0-5
	52-60	2.0-6.0	7.9-9.0	1-10	0.0-2.0	1-10
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
86:						
Cashmere, cemented substratum	0-10	4.0-10	6.6-7.3	0	0.0-2.0	0
	10-44	2.0-6.0	6.6-7.3	0	0.0-2.0	0
	44-52	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0-5
	52-60	2.0-6.0	7.9-9.0	1-10	0.0-2.0	1-10
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
87:						
Cashmont	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-36	4.0-11	6.6-7.8	0	0.0-2.0	0
	36-60	4.0-11	6.6-7.8	0	0.0-2.0	0
88:						
Cashmont	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-36	4.0-11	6.6-7.8	0	0.0-2.0	0
	36-60	4.0-11	6.6-7.8	0	0.0-2.0	0
89:						
Cashmont	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-24	4.0-11	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-11	6.6-7.8	0	0.0-2.0	0
90:						
Cashmont	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-24	4.0-11	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-11	6.6-7.8	0	0.0-2.0	0
91:						
Cashmont	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-24	4.0-11	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-11	6.6-7.8	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
92:						
Chelan, cemented substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-42	3.0-10	6.6-7.8	0	0.0-2.0	0
	42-46	1.0-9.0	7.4-9.0	1-10	0.0-2.0	1-5
	46-60	3.0-9.0	7.4-8.4	1-10	0.0-2.0	0-3
93:						
Chelan, cemented substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-42	3.0-10	6.6-7.8	0	0.0-2.0	0
	42-46	1.0-9.0	7.4-9.0	1-10	0.0-2.0	1-5
	46-60	3.0-9.0	7.4-8.4	1-10	0.0-2.0	0-3
94:						
Chelan, cemented substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-42	3.0-10	6.6-7.8	0	0.0-2.0	0
	42-46	1.0-9.0	7.4-9.0	1-10	0.0-2.0	1-5
	46-60	3.0-9.0	7.4-8.4	1-10	0.0-2.0	0-3
95:						
Chelan, bedrock substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-25	3.0-10	6.6-7.8	0	0.0-2.0	0
	25-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
96:						
Chelan, gravelly substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-25	3.0-10	6.6-7.8	0	0.0-2.0	0
	25-46	3.0-10	6.6-7.8	0	0.0-2.0	0
	46-60	0.0-5.0	6.6-8.4	1-5	0.0-2.0	0-3
97:						
Chelan, gravelly substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-25	3.0-10	6.6-7.8	0	0.0-2.0	0
	25-46	3.0-10	6.6-7.8	0	0.0-2.0	0
	46-60	0.0-5.0	6.6-8.4	1-5	0.0-2.0	0-3
98:						
Chelan, gravelly substratum----------	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-25	3.0-10	6.6-7.8	0	0.0-2.0	0
	25-46	3.0-10	6.6-7.8	0	0.0-2.0	0
	46-60	0.0-5.0	6.6-8.4	1-5	0.0-2.0	0-3
99:						
Cheviot----------	0-10	6.0-18	6.6-7.8	0	0.0-2.0	0
	10-32	6.0-16	6.6-7.8	0	0.0-2.0	0
	32-60	6.0-16	6.6-7.8	0	0.0-2.0	0
Ralls----------	0-10	4.0-11	6.6-8.4	0	0.0-2.0	0
	10-20	13-32	7.4-8.4	0	0.0-2.0	0
	20-32	13-27	7.4-8.4	0	0.0-2.0	0
	32-60	13-27	7.4-9.0	0	0.0-2.0	1-8
Dougville----------	0-6	5.0-16	5.6-7.8	0	0.0-2.0	0
	6-27	5.0-15	6.6-7.8	0	0.0-2.0	0
	27-52	5.0-15	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	7.4-8.4	0-5	0.0-2.0	0-3
100:						
Cheviot----------	0-10	6.0-18	6.6-7.8	0	0.0-2.0	0
	10-32	6.0-16	6.6-7.8	0	0.0-2.0	0
	32-60	6.0-16	6.6-7.8	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
100:						
Ralls	0-10	4.0-11	6.6-8.4	0	0.0-2.0	0
	10-20	13-32	7.4-8.4	0	0.0-2.0	0
	20-32	13-27	7.4-8.4	0	0.0-2.0	0
	32-60	13-27	7.4-9.0	0	0.0-2.0	1-8
Grinrod	0-6	7.0-15	6.6-7.8	0	0.0-2.0	0
	6-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-22	13-32	6.6-7.8	0	0.0-2.0	0
	22-32	---	---	---	---	---
101:						
Cheviot	0-10	6.0-18	6.6-7.8	0	0.0-2.0	0
	10-32	6.0-16	6.6-7.8	0	0.0-2.0	0
	32-60	6.0-16	6.6-7.8	0	0.0-2.0	0
Ralls	0-10	4.0-11	6.6-8.4	0	0.0-2.0	0
	10-20	13-32	7.4-8.4	0	0.0-2.0	0
	20-32	13-27	7.4-8.4	0	0.0-2.0	0
	32-60	13-27	7.4-9.0	0	0.0-2.0	1-8
Rubble land	0-60	---	---	---	---	---
102:						
Conconully	0-7	4.0-13	5.6-7.3	0	0.0-2.0	0
	7-20	4.0-13	6.6-7.3	0	0.0-2.0	0
	20-32	3.0-11	6.6-7.3	0	0.0-2.0	0
	32-60	3.0-11	6.6-7.3	0	0.0-2.0	0
Conconully, bedrock substratum	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
103:						
Conconully	0-7	4.0-13	5.6-7.3	0	0.0-2.0	0
	7-20	4.0-13	6.6-7.3	0	0.0-2.0	0
	20-32	3.0-11	6.6-7.3	0	0.0-2.0	0
	32-60	3.0-11	6.6-7.3	0	0.0-2.0	0
Conconully, bedrock substratum	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
104:						
Conconully	0-7	4.0-13	5.6-7.3	0	0.0-2.0	0
	7-20	4.0-13	6.6-7.3	0	0.0-2.0	0
	20-32	3.0-11	6.6-7.3	0	0.0-2.0	0
	32-60	3.0-11	6.6-7.3	0	0.0-2.0	0
Conconully, bedrock substratum	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
105:						
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Swakane----------	0-8	5.0-16	6.1-7.3	0	0.0-2.0	0
	8-13	3.0-13	6.1-7.3	0	0.0-2.0	0
	13-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
106:						
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Swakane----------	0-8	5.0-16	6.1-7.3	0	0.0-2.0	0
	8-13	3.0-13	6.1-7.3	0	0.0-2.0	0
	13-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
107:						
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Swakane----------	0-8	5.0-16	6.1-7.3	0	0.0-2.0	0
	8-13	3.0-13	6.1-7.3	0	0.0-2.0	0
	13-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
108:						
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Wagberg----------	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-26	4.0-9.0	6.6-7.3	0	0.0-2.0	0
	26-48	3.0-9.0	6.6-7.3	0	0.0-2.0	0
	48-58	---	---	---	---	---
109:						
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
109:						
Wagberg	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-26	4.0-9.0	6.6-7.3	0	0.0-2.0	0
	26-48	3.0-9.0	6.6-7.3	0	0.0-2.0	0
	48-58	---	---	---	---	---
110:						
Conconully, bedrock substratum	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Wagberg	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-26	4.0-9.0	6.6-7.3	0	0.0-2.0	0
	26-48	3.0-9.0	6.6-7.3	0	0.0-2.0	0
	48-58	---	---	---	---	---
111:						
Conconully, bedrock substratum	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
Wagberg	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-26	4.0-9.0	6.6-7.3	0	0.0-2.0	0
	26-48	3.0-9.0	6.6-7.3	0	0.0-2.0	0
	48-58	---	---	---	---	---
112:						
Corbaley	0-5	3.0-11	6.1-7.3	0	0.0-2.0	0
	5-9	3.0-11	6.6-7.8	0	0.0-2.0	0
	9-16	9.0-14	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Kester	0-13	3.0-11	5.6-7.3	0	0.0-2.0	0
	13-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-35	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	35-45	---	---	---	---	---
113:						
Cordy	0-16	7.0-19	6.1-7.3	0	0.0-2.0	0
	16-21	7.0-13	6.1-7.3	0	0.0-2.0	0
	21-60	8.0-16	6.6-7.3	0	0.0-2.0	0
Stemilt	0-9	7.0-16	6.6-7.3	0	0.0-2.0	0
	9-18	10-28	6.6-7.3	0	0.0-2.0	0
	18-40	20-32	6.6-7.3	0	0.0-2.0	0
	40-60	20-32	6.6-7.3	0	0.0-2.0	0
114:						
Dam	---	---	---	---	---	---
115:						
Deercut	0-5	5.0-13	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-14	6.6-7.8	0	0.0-2.0	0
	10-24	7.0-16	6.6-7.8	0	0.0-2.0	0
	24-28	---	---	---	---	---
	28-33	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	33-37	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
116:						
Deercut	0-5	5.0-13	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-14	6.6-7.8	0	0.0-2.0	0
	10-24	7.0-16	6.6-7.8	0	0.0-2.0	0
	24-28	---	---	---	---	---
	28-33	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	33-37	---	---	---	---	---
Aarup	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0-5	0.0-2.0	0-1
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
Whiteye	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-18	5.0-14	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
117:						
Deercut	0-5	5.0-13	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-14	6.6-7.8	0	0.0-2.0	0
	10-24	7.0-16	6.6-7.8	0	0.0-2.0	0
	24-28	---	---	---	---	---
	28-33	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	33-37	---	---	---	---	---
Aarup	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0-5	0.0-2.0	0-1
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
Whiteye	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-18	5.0-14	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
118:						
Deercut	0-5	5.0-13	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-14	6.6-7.8	0	0.0-2.0	0
	10-24	7.0-16	6.6-7.8	0	0.0-2.0	0
	24-28	---	---	---	---	---
	28-33	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	33-37	---	---	---	---	---
Aarup	0-9	4.0-12	6.1-7.3	0	0.0-2.0	0
	9-16	4.0-11	7.4-8.4	0-5	0.0-2.0	0-1
	16-26	---	---	---	---	---
	26-36	---	---	---	---	---
Whiteye	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-18	5.0-14	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
119:						
DelRio	0-13	3.0-9.0	5.6-7.3	0	0.0-2.0	0
	13-45	2.0-10	6.6-7.8	0	0.0-2.0	0
	45-60	3.0-5.0	6.6-7.8	0-3	0.0-2.0	0
120:						
DelRio	0-13	3.0-9.0	5.6-7.3	0	0.0-2.0	0
	13-45	2.0-10	6.6-7.8	0	0.0-2.0	0
	45-60	3.0-5.0	6.6-7.8	0-3	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
121:						
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
122:						
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
123:						
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
124:						
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Brazlan	0-8	5.0-15	6.6-7.3	0	0.0-2.0	0
	8-12	5.0-15	6.6-7.8	0	0.0-2.0	0
	12-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-34	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	34-38	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
125:						
Dezellem	0-10	5.0-15	6.6-7.3	0	0.0-2.0	0
	10-20	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	20-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Stubblefield	0-12	5.0-15	6.1-7.3	0	0.0-2.0	0
	12-22	6.0-13	6.1-7.8	0	0.0-2.0	0
	22-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-41	---	---	---	---	---
	41-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
126:						
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
126:						
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-20	4.0-13	6.1-7.8	0	0.0-2.0	0
	20-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
Rock outcrop	0-60	---	---	---	---	---
127:						
Dezellem	0-10	5.0-15	6.6-7.3	0	0.0-2.0	0
	10-20	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	20-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Timentwa	0-14	4.0-13	5.6-7.8	0	0.0-2.0	0
	14-33	4.0-13	6.1-7.8	0	0.0-2.0	0
	33-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
Rock outcrop	0-60	---	---	---	---	---
128:						
Dinkels	0-18	5.0-17	6.6-7.8	0	0.0-2.0	0
	18-28	5.0-14	6.6-7.8	0	0.0-2.0	0
	28-41	4.0-13	6.6-7.8	0	0.0-2.0	0
	41-45	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
129:						
Dougville	0-6	5.0-16	5.6-7.8	0	0.0-2.0	0
	6-27	5.0-15	6.6-7.8	0	0.0-2.0	0
	27-52	7.0-14	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	7.4-8.4	0-5	0.0-2.0	0-3
130:						
Dougville	0-6	5.0-16	5.6-7.8	0	0.0-2.0	0
	6-27	5.0-15	6.6-7.8	0	0.0-2.0	0
	27-52	7.0-14	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	7.4-8.4	0-5	0.0-2.0	0-3
131:						
Dougville	0-6	5.0-16	5.6-7.8	0	0.0-2.0	0
	6-27	5.0-15	6.6-7.8	0	0.0-2.0	0
	27-52	7.0-14	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	7.4-8.4	0-5	0.0-2.0	0-3
132:						
Dougville	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
133:						
Dougville	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
134:						
Dougville	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
135:						
Dougville, cemented substratum----------	0-8	5.0-16	5.6-7.8	0	0.0-2.0	0
	8-20	5.0-15	6.6-7.8	0	0.0-2.0	0
	20-30	5.0-13	6.6-7.8	0	0.0-2.0	0
	30-48	10-20	6.6-7.8	0	0.0-2.0	0
	48-59	10-20	7.9-8.4	0	0.0-2.0	0
	59-60	5.0-15	7.4-8.4	0-5	0.0-2.0	0
Badge----------	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
136:						
Dougville, cemented substratum----------	0-8	5.0-16	5.6-7.8	0	0.0-2.0	0
	8-19	5.0-15	6.6-7.8	0	0.0-2.0	0
	19-39	5.0-15	6.6-7.8	0	0.0-2.0	0
	39-57	6.0-16	7.4-8.4	0	0.0-2.0	0
	57-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
Farmer, cemented substratum----------	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
137:						
Dougville, cemented substratum----------	0-8	5.0-16	5.6-7.8	0	0.0-2.0	0
	8-19	5.0-15	6.6-7.8	0	0.0-2.0	0
	19-39	5.0-15	6.6-7.8	0	0.0-2.0	0
	39-57	6.0-16	7.4-8.4	0	0.0-2.0	0
	57-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
Farmer, cemented substratum----------	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
Dutchenry----------	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
138:						
Dougville, cemented substratum----------	0-8	5.0-16	5.6-7.8	0	0.0-2.0	0
	8-19	5.0-15	6.6-7.8	0	0.0-2.0	0
	19-39	5.0-15	6.6-7.8	0	0.0-2.0	0
	39-57	6.0-16	7.4-8.4	0	0.0-2.0	0
	57-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
Norax----------	0-4	10-22	5.6-7.3	0	0.0-2.0	0
	4-34	19-32	6.6-7.8	0	0.0-2.0	0
	34-54	7.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	54-60	3.0-13	7.4-8.4	1-15	0.0-2.0	0-5
Nemire----------	0-16	4.0-15	5.6-7.8	0	0.0-2.0	0
	16-37	4.0-14	6.6-7.8	0	0.0-2.0	0
	37-47	3.0-12	6.6-7.8	0	0.0-2.0	0
	47-60	5.0-10	6.6-7.8	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
139:						
Drysel	0-7	5.0-11	6.1-7.3	0	0.0-2.0	0
	7-10	5.0-11	6.6-7.8	0	0.0-2.0	0
	10-17	6.0-12	7.4-7.8	0	0.0-2.0	0-3
	17-26	18-32	7.4-8.4	1-15	0.0-2.0	1-13
	26-33	18-32	7.9-9.0	3-20	0.0-4.0	3-13
	33-57	---	---	---	---	---
	57-60	---	---	---	---	---
140:						
Drysel	0-7	5.0-11	6.1-7.3	0	0.0-2.0	0
	7-10	5.0-11	6.6-7.8	0	0.0-2.0	0
	10-17	6.0-12	7.4-7.8	0	0.0-2.0	0-3
	17-26	18-32	7.4-8.4	1-15	0.0-2.0	1-13
	26-33	18-32	7.9-9.0	3-20	0.0-4.0	3-13
	33-57	---	---	---	---	---
	57-60	---	---	---	---	---
Wanapum	0-6	5.0-14	6.6-7.8	0	0.0-2.0	0
	6-15	13-32	7.4-8.4	0-5	0.0-4.0	0-5
	15-20	---	---	---	---	---
	20-30	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	30-40	---	---	---	---	---
141:						
Durixerolls	0-9	4.0-9.0	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Ellisforde	0-8	5.0-10	6.1-7.3	0	0.0-2.0	0
	8-18	4.0-16	6.6-7.8	0	0.0-2.0	0
	18-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
142:						
Durixerolls	0-9	4.0-9.0	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Ellisforde	0-8	5.0-10	6.1-7.3	0	0.0-2.0	0
	8-18	4.0-16	6.6-7.8	0	0.0-2.0	0
	18-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
143:						
Durixerolls	0-9	4.0-13	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Ellisforde	0-8	5.0-10	6.1-7.3	0	0.0-2.0	0
	8-18	4.0-16	6.6-7.8	0	0.0-2.0	0
	18-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
144:						
Durixerolls, moist---	0-9	4.0-9.0	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Halaquepts, cemented substratum----------	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
145:						
Durixerolls, moist---	0-9	4.0-9.0	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Halaquepts, cemented substratum----------	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
146:						
Durixerolls----------	0-9	4.0-9.0	6.6-9.0	0-10	0.0-2.0	0-5
	9-21	5.0-24	7.9-9.0	1-10	0.0-2.0	0-10
	21-30	3.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	30-34	5.0-18	7.9-9.0	1-15	0.0-4.0	0-10
	34-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Durixerolls, moist---	0-8	4.0-9.0	7.4-8.4	0-10	0.0-2.0	0-5
	8-38	5.0-24	7.4-8.4	1-8	0.0-2.0	0-10
	38-45	4.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	45-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Halaquepts, cemented substratum----------	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
147:						
Durixerolls, moist---	0-6	3.0-14	6.6-8.4	0-8	0.0-2.0	0-5
	6-24	3.0-22	7.4-8.4	1-8	0.0-2.0	0-10
	24-32	5.0-20	8.5-9.0	1-15	0.0-4.0	1-10
	32-36	4.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	36-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Halaquepts----------	0-8	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	8-15	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	15-26	5.0-18	9.1-11.0	1-15	0.0-4.0	13-20
	26-60	5.0-22	7.9-9.0	1-15	0.0-4.0	5-13
148:						
Durixerolls, moist---	0-6	3.0-14	6.6-8.4	0-8	0.0-2.0	0-5
	6-24	3.0-22	7.4-8.4	1-8	0.0-2.0	0-10
	24-32	5.0-20	8.5-9.0	1-15	0.0-4.0	1-10
	32-36	4.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	36-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
148:						
Halaquepts----------	0-8	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	8-15	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	15-26	5.0-18	9.1-11.0	1-15	0.0-4.0	13-20
	26-60	5.0-22	7.9-9.0	1-15	0.0-4.0	5-13
149:						
Durixerolls----------	0-10	5.0-16	7.4-8.4	0-10	0.0-2.0	0-5
	10-32	3.0-22	7.4-8.4	1-8	0.0-2.0	0-10
	32-42	4.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	42-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Durixerolls, moist---	0-8	5.0-16	7.4-8.4	0-10	0.0-2.0	0-5
	8-38	3.0-22	7.4-8.4	1-8	0.0-2.0	0-10
	38-45	4.0-22	7.9-9.0	1-15	0.0-4.0	1-10
	45-60	4.0-18	7.9-9.0	1-15	0.0-4.0	0-10
Halaquepts, cemented substratum----------	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
150:						
Dutchenry----------	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
151:						
Ebadlow----------	0-8	10-20	5.6-7.3	0	0.0-2.0	0
	8-32	15-25	6.6-7.3	0	0.0-2.0	0
	32-49	15-25	6.6-7.3	0	0.0-2.0	0
	49-60	5.0-10	6.6-7.3	0	0.0-2.0	0
152:						
Ebadlow----------	0-8	10-20	5.6-7.3	0	0.0-2.0	0
	8-32	15-25	6.6-7.3	0	0.0-2.0	0
	32-49	15-25	6.6-7.3	0	0.0-2.0	0
	49-60	5.0-10	6.6-7.3	0	0.0-2.0	0
Spofford----------	0-9	6.0-17	6.6-7.8	0	0.0-2.0	0
	9-21	14-29	8.5-9.6	1-5	2.0-4.0	13-20
	21-44	8.0-18	8.5-9.6	1-15	2.0-4.0	5-20
	44-53	---	---	---	---	---
	53-58	4.0-14	7.4-9.0	1-10	0.0-4.0	1-8
	58-62	---	---	---	---	---
Badgermont----------	0-9	8.0-18	5.6-7.3	0	0.0-2.0	0
	9-25	15-25	6.6-7.3	0	0.0-2.0	0
	25-38	25-32	6.6-7.3	0	0.0-2.0	0
	38-42	---	---	---	---	---
153:						
Ebadlow----------	0-8	10-20	5.6-7.3	0	0.0-2.0	0
	8-32	15-25	6.6-7.3	0	0.0-2.0	0
	32-49	15-25	6.6-7.3	0	0.0-2.0	0
	49-60	5.0-10	6.6-7.3	0	0.0-2.0	0
Spofford----------	0-9	6.0-17	6.6-7.8	0	0.0-2.0	0
	9-21	14-29	8.5-9.6	1-5	2.0-4.0	13-20
	21-44	8.0-18	8.5-9.6	1-15	2.0-4.0	5-20
	44-53	---	---	---	---	---
	53-58	4.0-14	7.4-9.0	1-10	0.0-4.0	1-8
	58-62	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
153:						
Badgermont	0-9	8.0-18	5.6-7.3	0	0.0-2.0	0
	9-25	15-25	6.6-7.3	0	0.0-2.0	0
	25-38	25-32	6.6-7.3	0	0.0-2.0	0
	38-42	---	---	---	---	---
154:						
Ellisforde	0-10	4.0-13	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	26-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
155:						
Ellisforde	0-10	4.0-13	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	26-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
156:						
Ellisforde	0-8	5.0-10	6.1-7.3	0	0.0-2.0	0
	8-18	4.0-16	6.6-7.8	0	0.0-2.0	0
	18-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
157:						
Ellisforde	0-10	4.0-18	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	27-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
158:						
Ellisforde	0-7	5.0-13	6.1-7.3	0	0.0-2.0	0
	7-15	4.0-16	6.6-7.8	0	0.0-2.0	0
	15-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
DelRio	0-10	3.0-9.0	6.1-7.3	0	0.0-2.0	0
	10-60	2.0-10	6.6-7.8	0	0.0-2.0	0
Nyssaton	0-9	5.0-20	7.9-8.4	0	0.0-2.0	0-5
	9-60	5.0-15	7.9-9.0	3-15	0.0-4.0	0-5
159:						
Ellisforde	0-10	4.0-18	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	27-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
Halaquepts	0-8	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	8-31	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	31-38	5.0-18	9.1-11.0	1-15	0.0-4.0	13-20
	38-45	5.0-30	7.9-9.0	1-15	0.0-4.0	5-13
	45-50	5.0-22	7.9-9.0	1-15	0.0-4.0	5-13
	50-60	5.0-10	7.9-9.0	1-15	0.0-4.0	1-10
160:						
Ellisforde	0-19	5.0-10	6.1-7.3	0	0.0-2.0	0
	19-36	4.0-16	6.6-7.8	0	0.0-2.0	0
	36-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
Nespelem	0-9	5.0-15	6.6-7.3	0	0.0-2.0	0
	9-28	7.0-16	6.6-7.8	0	0.0-2.0	0-3
	28-38	7.0-16	7.4-9.6	1-15	2.0-4.0	2-13
	38-60	7.0-27	7.4-9.6	1-15	2.0-4.0	2-13
Nemire, moist	0-10	3.0-13	5.6-7.8	0	0.0-2.0	0
	10-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
161:						
Ellisforde	0-7	5.0-13	6.1-7.3	0	0.0-2.0	0
	7-15	4.0-16	6.6-7.8	0	0.0-2.0	0
	15-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
Nyssaton	0-9	5.0-20	7.9-8.4	0	0.0-2.0	0-5
	9-60	5.0-15	7.9-9.0	3-15	0.0-4.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
161:						
DelRio	0-10	3.0-9.0	6.1-7.3	0	0.0-2.0	0
	10-60	2.0-10	6.6-7.8	0	0.0-2.0	0
162:						
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
163:						
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
164:						
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
Leahy	0-6	4.0-13	8.5-9.0	5-10	4.0-8.0	10-20
	6-13	24-45	9.1-11.0	5-10	8.0-16.0	15-30
	13-27	24-40	8.5-11.0	5-10	8.0-16.0	15-30
	27-60	14-36	8.5-9.0	5-10	4.0-8.0	10-20
165:						
Entiat	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-11	6.0-15	6.6-7.8	0	0.0-2.0	0
	11-17	6.0-13	6.6-7.8	0	0.0-2.0	0
	17-27	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Torriorthents	0-8	1.0-5.0	6.6-7.8	0	0.0-2.0	0
	8-60	0.0-4.0	6.6-7.8	0-2	0.0-2.0	0
166:						
Entiat	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-11	6.0-15	6.6-7.8	0	0.0-2.0	0
	11-17	6.0-13	6.6-7.8	0	0.0-2.0	0
	17-27	---	---	---	---	---
Roosevelt	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-26	3.0-13	6.6-7.8	0	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
167:						
Ephrata	0-9	3.0-7.0	7.4-7.8	0	0.0-2.0	0
	9-25	1.0-3.0	7.4-8.4	0	0.0-2.0	0
	25-60	1.0-3.0	7.9-8.4	0	0.0-2.0	0
168:						
Esquatzel	0-7	5.0-13	6.1-7.3	0	0.0-2.0	0
	7-12	5.0-13	6.6-7.8	0	0.0-2.0	0
	12-19	5.0-11	6.6-7.8	0	0.0-2.0	0
	19-28	4.0-11	7.4-7.8	0	0.0-2.0	0
	28-46	5.0-11	7.4-8.4	1-3	0.0-2.0	0
	46-60	4.0-11	7.4-8.4	1-5	0.0-2.0	0-2
169:						
Esquatzel	0-7	4.0-13	6.1-7.8	0	0.0-2.0	0
	7-44	4.0-13	7.4-8.4	1-5	0.0-2.0	0
	44-47	3.0-13	7.9-9.0	1-15	0.0-2.0	0-5
	47-60	3.0-13	7.4-8.4	0-5	0.0-2.0	0
170:						
Esquatzel	0-10	4.0-13	6.1-7.8	0	0.0-2.0	0
	10-34	4.0-13	7.4-8.4	0-5	0.0-2.0	0-1
	34-60	3.0-13	7.4-8.4	1-5	0.0-2.0	0-2

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
171:						
Ewall	0-18	1.0-5.0	5.6-7.3	0	0.0-2.0	0
	18-28	0.0-4.0	6.6-8.4	0	0.0-2.0	0
	28-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
172:						
Ewall	0-18	1.0-5.0	5.6-7.3	0	0.0-2.0	0
	18-28	0.0-4.0	6.6-8.4	0	0.0-2.0	0
	28-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
Alecanyon	0-9	3.0-13	6.6-7.3	0	0.0-2.0	0
	9-12	2.0-11	6.6-7.3	0	0.0-2.0	0
	12-20	1.0-4.0	6.6-7.3	0	0.0-2.0	0
	20-60	1.0-4.0	6.6-7.3	0	0.0-2.0	0
173:						
Farmer	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
174:						
Farmer	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
175:						
Farmer	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
176:						
Farmer	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
177:						
Farmer	0-11	5.0-16	5.6-7.3	0	0.0-2.0	0
	11-19	5.0-15	6.6-7.3	0	0.0-2.0	0
	19-48	7.0-16	6.6-7.8	0	0.0-2.0	0
	48-60	3.0-13	6.6-7.8	0-3	0.0-2.0	0-1
178:						
Farrell	0-8	8.0-15	7.4-7.8	0	0.0-2.0	0
	8-20	8.0-15	7.4-8.4	0	0.0-2.0	0
	20-60	5.0-10	7.9-9.0	2-10	0.0-2.0	0
179:						
Finley	0-8	5.0-10	7.4-8.4	0	0.0-2.0	0
	8-23	5.0-10	7.4-8.4	1-5	0.0-2.0	0
	23-60	5.0-10	7.4-8.4	1-5	0.0-2.0	0
180:						
Finley	0-8	5.0-10	7.4-8.4	0	0.0-2.0	0
	8-23	2.0-6.0	7.4-8.4	1-5	0.0-2.0	0
	23-60	0.0-2.0	7.4-8.4	1-5	0.0-2.0	0
181:						
Finley	0-6	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	6-22	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	22-26	3.0-9.0	7.4-8.4	1-8	0.0-2.0	1-8
	26-60	0.0-4.0	7.4-8.4	1-5	0.0-2.0	1-5
182:						
Ginnis	0-10	4.0-11	5.6-7.3	0	0.0-2.0	0
	10-20	4.0-9.0	6.1-7.3	0	0.0-2.0	0
	20-29	4.0-13	6.6-7.3	0	0.0-2.0	0
	29-35	4.0-13	6.6-7.3	0	0.0-2.0	0
	35-45	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
183:						
Ginnis	0-10	4.0-11	5.6-7.3	0	0.0-2.0	0
	10-20	4.0-9.0	6.1-7.3	0	0.0-2.0	0
	20-29	4.0-13	6.6-7.3	0	0.0-2.0	0
	29-35	4.0-13	6.6-7.3	0	0.0-2.0	0
	35-45	---	---	---	---	---
184:						
Ginnis	0-10	4.0-11	5.6-7.3	0	0.0-2.0	0
	10-20	4.0-9.0	6.1-7.3	0	0.0-2.0	0
	20-29	4.0-13	6.6-7.3	0	0.0-2.0	0
	29-35	4.0-13	6.6-7.3	0	0.0-2.0	0
	35-45	---	---	---	---	---
Swakane	0-8	5.0-16	6.1-7.3	0	0.0-2.0	0
	8-13	3.0-13	6.1-7.3	0	0.0-2.0	0
	13-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
185:						
Grinrod	0-6	7.0-15	6.6-7.8	0	0.0-2.0	0
	6-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-22	13-32	6.6-7.8	0	0.0-2.0	0
	22-32	---	---	---	---	---
Ralls	0-7	6.0-16	6.6-7.8	0	0.0-2.0	0
	7-12	13-32	7.4-8.4	0	0.0-2.0	0
	12-60	13-27	7.4-9.0	0	0.0-2.0	1-8
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
186:						
Grinrod	0-6	7.0-15	6.6-7.8	0	0.0-2.0	0
	6-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-22	13-32	6.6-7.8	0	0.0-2.0	0
	22-32	---	---	---	---	---
Ralls	0-10	4.0-11	6.6-8.4	0	0.0-2.0	0
	10-20	13-32	7.4-8.4	0	0.0-2.0	0
	20-32	13-27	7.4-8.4	0	0.0-2.0	0
	32-60	13-27	7.4-9.0	0	0.0-2.0	1-8
Rubble land	0-60	---	---	---	---	---
187:						
Grinrod	0-6	7.0-15	6.6-7.8	0	0.0-2.0	0
	6-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-22	13-32	6.6-7.8	0	0.0-2.0	0
	22-32	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
188:						
Halaquepts	0-8	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	8-31	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	31-38	5.0-18	9.1-11.0	1-15	0.0-4.0	13-20
	38-45	5.0-30	7.9-9.0	1-15	0.0-4.0	5-13
	45-50	5.0-22	7.9-9.0	1-15	0.0-4.0	5-13
	50-60	5.0-10	7.9-9.0	1-15	0.0-4.0	1-10

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
188:						
Halaquepts, cemented substratum----------	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
189:						
Hanning----------	0-8	9.0-16	5.6-7.3	0	0.0-2.0	0
	8-17	8.0-18	6.1-7.3	0	0.0-2.0	0
	17-28	15-27	6.6-7.3	0	0.0-2.0	0
	28-38	16-25	6.6-7.8	0	0.0-2.0	0
	38-51	18-25	6.6-7.8	0	0.0-2.0	0-2
	51-60	16-25	7.4-7.8	0	0.0-2.0	0-3
190:						
Hanning, cemented substratum----------	0-7	9.0-16	5.6-7.3	0	0.0-2.0	0
	7-28	8.0-16	6.6-7.8	0	0.0-2.0	0
	28-50	16-25	6.6-7.8	0	0.0-2.0	0
	50-58	5.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	58-60	---	---	---	---	---
McCue----------	0-6	10-24	5.6-7.3	0	0.0-2.0	0
	6-26	23-36	6.6-7.3	0	0.0-2.0	0
	26-53	13-27	6.6-7.8	0	0.0-2.0	0
	53-60	---	---	---	---	---
Badgermont----------	0-9	8.0-18	5.6-7.3	0	0.0-2.0	0
	9-25	15-25	6.6-7.3	0	0.0-2.0	0
	25-38	25-32	6.6-7.3	0	0.0-2.0	0
	38-42	---	---	---	---	---
191:						
Hanning, cemented substratum----------	0-7	9.0-16	5.6-7.3	0	0.0-2.0	0
	7-28	8.0-16	6.6-7.8	0	0.0-2.0	0
	28-50	16-25	6.6-7.8	0	0.0-2.0	0
	50-58	5.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	58-60	---	---	---	---	---
McCue----------	0-6	10-24	5.6-7.3	0	0.0-2.0	0
	6-26	23-36	6.6-7.3	0	0.0-2.0	0
	26-53	13-27	6.6-7.8	0	0.0-2.0	0
	53-60	---	---	---	---	---
Badgermont----------	0-9	8.0-18	5.6-7.3	0	0.0-2.0	0
	9-25	15-25	6.6-7.3	0	0.0-2.0	0
	25-38	25-32	6.6-7.3	0	0.0-2.0	0
	38-42	---	---	---	---	---
192:						
Haploxerolls----------	0-8	4.0-17	5.6-7.3	0	0.0-2.0	0
	8-13	4.0-17	6.1-7.8	0	0.0-2.0	0
	13-47	1.0-11	6.6-8.4	0-5	0.0-2.0	0
	47-61	1.0-7.0	6.6-7.8	0-3	0.0-2.0	0
193:						
Haploxerolls, wet----	0-5	11-20	6.6-7.8	0	0.0-2.0	0
	5-32	5.0-20	6.6-8.4	0-8	0.0-4.0	0-3
	32-43	4.0-18	6.6-8.4	0-8	0.0-4.0	0-5
	43-60	5.0-16	6.6-8.4	0-8	0.0-4.0	0-5
194:						
Haploxerolls----------	0-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-25	5.0-20	6.6-8.4	0-8	0.0-4.0	0-3
	25-41	4.0-18	6.6-8.4	0-8	0.0-4.0	0-5
	41-60	5.0-16	6.6-8.4	0-8	0.0-4.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
194:						
Aquolls	0-8	6.0-18	5.6-8.4	0-5	0.0-4.0	0-5
	8-20	6.0-22	6.6-8.4	0-8	0.0-4.0	0-5
	20-33	7.0-22	6.6-9.0	0-10	0.0-4.0	0-8
	33-40	10-25	6.6-9.0	0-10	0.0-4.0	0-8
	40-50	10-32	6.6-9.0	0-15	0.0-4.0	0-8
	50-60	1.0-32	6.6-9.0	0-8	0.0-4.0	0-8
Halaquepts, cemented substratum	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
195:						
Heytou	0-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-7.8	0	0.0-2.0	0
	26-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
196:						
Heytou	0-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-7.8	0	0.0-2.0	0
	26-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
197:						
Heytou	0-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-7.8	0	0.0-2.0	0
	26-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
198:						
Heytou	0-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-7.8	0	0.0-2.0	0
	26-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
Rock outcrop	0-60	---	---	---	---	---
199:						
Heytou	0-10	7.0-15	6.6-7.8	0	0.0-2.0	0
	10-36	3.0-16	7.4-7.8	0	0.0-2.0	0
	36-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Stubblefield	0-12	5.0-15	6.1-7.3	0	0.0-2.0	0
	12-22	6.0-13	6.1-7.8	0	0.0-2.0	0
	22-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-41	---	---	---	---	---
	41-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
199:						
Siweeka, bedrock substratum----------	0-13	4.0-13	5.6-7.8	0	0.0-2.0	0
	13-27	4.0-13	6.6-8.4	0	0.0-2.0	0
	27-39	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	39-43	---	---	---	---	---
	43-47	---	---	---	---	---
200:						
Heytou----------	0-4	7.0-15	6.6-7.8	0	0.0-2.0	0
	4-20	3.0-16	7.4-7.8	0	0.0-2.0	0
	20-60	3.0-16	7.4-9.0	1-10	0.0-4.0	1-8
Timentwa----------	0-14	4.0-13	5.6-7.8	0	0.0-2.0	0
	14-33	4.0-13	6.1-7.8	0	0.0-2.0	0
	33-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
Strat----------	0-9	6.0-11	6.6-7.8	0	0.0-2.0	0
	9-20	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
201:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
202:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
203:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
204:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Argabak----------	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
205:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Argabak----------	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
206:						
Jordy----------	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Argabak----------	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
207:						
Jordy	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
208:						
Jordy	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
209:						
Jordy	0-12	5.0-16	5.6-7.3	0	0.0-2.0	0
	12-21	7.0-16	6.6-7.8	0	0.0-2.0	0
	21-23	7.0-16	6.6-7.8	0	0.0-2.0	0
	23-33	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
210:						
Kester	0-13	3.0-11	5.6-7.3	0	0.0-2.0	0
	13-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-35	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	35-45	---	---	---	---	---
211:						
Kiakus	0-3	8.0-15	6.1-6.5	0	0.0-2.0	0
	3-9	7.0-15	6.6-7.3	0	0.0-2.0	0
	9-22	13-22	6.6-7.3	0	0.0-2.0	0
	22-32	---	---	---	---	---
Shinn	0-4	7.0-15	6.1-7.3	0	0.0-2.0	0
	4-10	17-32	6.6-7.3	0	0.0-2.0	0
	10-14	---	---	---	---	---
Lorena	0-12	6.0-18	5.6-7.3	0	0.0-2.0	0
	12-25	13-27	6.1-7.3	0	0.0-2.0	0
	25-35	---	---	---	---	---
212:						
Kiakus	0-3	8.0-15	6.1-6.5	0	0.0-2.0	0
	3-9	7.0-15	6.6-7.3	0	0.0-2.0	0
	9-22	13-22	6.6-7.3	0	0.0-2.0	0
	22-32	---	---	---	---	---
Shinn	0-4	7.0-15	6.1-7.3	0	0.0-2.0	0
	4-10	17-32	6.6-7.3	0	0.0-2.0	0
	10-14	---	---	---	---	---
Lorena	0-12	6.0-18	5.6-7.3	0	0.0-2.0	0
	12-25	13-27	6.1-7.3	0	0.0-2.0	0
	25-35	---	---	---	---	---
213:						
Kiona	0-3	5.0-10	7.4-7.8	0	0.0-2.0	0
	3-19	5.0-10	7.4-8.4	0	0.0-2.0	0
	19-60	5.0-10	7.4-8.4	1-5	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
214:						
Kiona	0-3	5.0-10	7.4-7.8	0	0.0-2.0	0
	3-19	5.0-10	7.4-8.4	0	0.0-2.0	0
	19-60	5.0-10	7.4-8.4	1-5	0.0-2.0	0
Rock outcrop	0-60	---	---	---	---	---
215:						
Leahy	0-6	4.0-13	8.5-9.0	5-10	4.0-8.0	10-20
	6-13	24-45	9.1-11.0	5-10	8.0-16.0	15-30
	13-27	24-40	8.5-11.0	5-10	8.0-16.0	15-30
	27-60	14-36	8.5-9.0	5-10	4.0-8.0	10-20
Elvedere	0-10	12-16	6.6-7.8	0	0.0-2.0	0
	10-18	30-40	7.4-8.4	1-5	0.0-4.0	0-5
	18-60	35-45	7.9-9.0	2-15	0.0-4.0	1-10
Halaquepts, cemented substratum	0-3	3.0-14	9.1-11.0	1-15	4.0-16.0	13-20
	3-28	3.0-22	9.1-11.0	1-15	0.0-8.0	13-20
	28-34	3.0-20	9.1-11.0	1-15	0.0-4.0	13-20
	34-38	3.0-18	9.1-11.0	1-15	0.0-4.0	5-13
	38-43	5.0-9.0	9.1-11.0	1-15	0.0-4.0	5-13
	43-60	5.0-9.0	8.5-9.0	1-15	0.0-4.0	5-10
216:						
Leidl	0-8	7.0-15	6.6-7.3	0	0.0-2.0	0
	8-18	7.0-13	6.6-7.3	0	0.0-2.0	0
	18-27	20-25	6.6-7.3	0	0.0-2.0	0
	27-38	20-25	6.6-7.3	0	0.0-2.0	0
	38-48	---	---	---	---	---
Stemilt, bedrock substratum	0-6	7.0-15	6.6-7.3	0	0.0-2.0	0
	6-16	7.0-15	6.6-7.3	0	0.0-2.0	0
	16-27	10-16	6.6-7.3	0	0.0-2.0	0
	27-50	20-32	6.6-7.3	0	0.0-2.0	0
	50-60	---	---	---	---	---
217:						
Leidl	0-8	7.0-15	6.6-7.3	0	0.0-2.0	0
	8-18	7.0-13	6.6-7.3	0	0.0-2.0	0
	18-27	20-25	6.6-7.3	0	0.0-2.0	0
	27-38	20-25	6.6-7.3	0	0.0-2.0	0
	38-48	---	---	---	---	---
Stemilt, bedrock substratum	0-6	7.0-15	6.6-7.3	0	0.0-2.0	0
	6-16	7.0-15	6.6-7.3	0	0.0-2.0	0
	16-27	10-16	6.6-7.3	0	0.0-2.0	0
	27-50	20-32	6.6-7.3	0	0.0-2.0	0
	50-60	---	---	---	---	---
218:						
Lickskillet	0-5	10-18	6.1-7.3	0	0.0-2.0	0
	5-9	14-24	6.6-7.8	0	0.0-2.0	0
	9-14	16-24	6.6-7.8	0	0.0-2.0	0
	14-24	---	---	---	---	---
219:						
Lickskillet	0-5	10-18	6.1-7.3	0	0.0-2.0	0
	5-9	14-24	6.6-7.8	0	0.0-2.0	0
	9-14	16-24	6.6-7.8	0	0.0-2.0	0
	14-18	---	---	---	---	---
220:						
Lickskillet	0-4	5.0-15	6.1-7.3	0	0	0
	4-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
221:						
Lickskillet----------	0-6	7.0-18	6.1-7.3	0	0.0-2.0	0
	6-13	14-24	6.6-7.8	0	0.0-2.0	0
	13-17	16-24	6.6-7.8	0	0.0-2.0	0
	17-21	---	---	---	---	---
Brazlan----------	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-20	5.0-15	6.6-7.8	0	0.0-2.0	0
	20-24	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	24-32	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	32-36	---	---	---	---	---
Dezellem----------	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
222:						
Logy----------	0-10	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	10-28	3.0-8.0	6.6-7.8	0	0.0-2.0	0
	28-60	1.0-3.0	6.6-8.4	0	0.0-2.0	0
223:						
Logy----------	0-10	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	10-28	3.0-8.0	6.6-7.8	0	0.0-2.0	0
	28-60	1.0-3.0	6.6-8.4	0	0.0-2.0	0
224:						
Logy----------	0-9	6.0-10	6.6-7.8	0	0.0-2.0	0
	9-22	3.0-8.0	6.6-7.8	0	0.0-2.0	0
	22-60	1.0-3.0	6.6-8.4	0	0.0-2.0	0
225:						
Lorena----------	0-13	6.0-18	5.6-7.3	0	0.0-2.0	0
	13-22	13-27	6.1-7.3	0	0.0-2.0	0
	22-26	13-27	6.1-7.3	0	0.0-2.0	0
	26-36	---	---	---	---	---
226:						
Lorena----------	0-13	6.0-18	5.6-7.3	0	0.0-2.0	0
	13-22	13-27	6.1-7.3	0	0.0-2.0	0
	22-26	13-27	6.1-7.3	0	0.0-2.0	0
	26-36	---	---	---	---	---
227:						
Lorena----------	0-13	6.0-18	5.6-7.3	0	0.0-2.0	0
	13-22	13-27	6.1-7.3	0	0.0-2.0	0
	22-26	13-27	6.1-7.3	0	0.0-2.0	0
	26-36	---	---	---	---	---
Broadax----------	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-18	6.0-18	6.6-7.3	0	0.0-2.0	0
	18-27	16-24	6.6-7.8	0	0.0-2.0	0
	27-60	16-27	7.4-9.0	1-15	0.0-4.0	1-8
228:						
Lorena----------	0-12	6.0-18	5.6-7.3	0	0.0-2.0	0
	12-25	13-27	6.1-7.3	0	0.0-2.0	0
	25-35	---	---	---	---	---
Shinn----------	0-4	7.0-15	6.1-7.3	0	0.0-2.0	0
	4-10	17-32	6.6-7.3	0	0.0-2.0	0
	10-14	---	---	---	---	---
229:						
Magallon----------	0-10	6.0-14	6.1-7.8	0	0.0-2.0	0
	10-19	6.0-12	7.4-8.4	2-8	0.0-2.0	0-3
	19-60	0.0-4.0	7.4-9.0	2-10	0.0-2.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
230:						
Magallon	0-10	6.0-14	6.1-7.8	0	0.0-2.0	0
	10-19	6.0-12	7.4-8.4	2-8	0.0-2.0	0-3
	19-60	0.0-4.0	7.4-9.0	2-10	0.0-2.0	0-5
231:						
Malaga	0-4	4.0-13	6.1-7.8	0	0.0-2.0	0
	4-12	4.0-13	6.1-7.8	0	0.0-2.0	0
	12-28	3.0-13	6.1-7.8	0	0.0-2.0	0
	28-60	0.0-5.0	6.1-8.4	0	0.0-2.0	0
232:						
Malaga	0-4	3.0-13	6.1-7.8	0	0.0-2.0	0
	4-12	3.0-13	6.1-7.8	0	0.0-2.0	0
	12-20	3.0-3.0	6.1-7.8	0	0.0-2.0	0
	20-60	0.0-5.0	6.1-7.8	1-5	0.0-2.0	0
233:						
McCue	0-6	10-24	5.6-7.3	0	0.0-2.0	0
	6-26	23-36	6.6-7.3	0	0.0-2.0	0
	26-53	13-27	6.6-7.8	0	0.0-2.0	0
	53-60	---	---	---	---	---
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
234:						
McCue	0-6	10-24	5.6-7.3	0	0.0-2.0	0
	6-26	23-36	6.6-7.3	0	0.0-2.0	0
	26-53	13-27	6.6-7.8	0	0.0-2.0	0
	53-60	---	---	---	---	---
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
235:						
McCue	0-6	10-24	5.6-7.3	0	0.0-2.0	0
	6-26	23-36	6.6-7.3	0	0.0-2.0	0
	26-53	13-27	6.6-7.8	0	0.0-2.0	0
	53-60	---	---	---	---	---
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
236:						
McCue	0-7	10-24	5.6-7.3	0	0.0-2.0	0
	7-13	25-45	6.6-7.3	0	0.0-2.0	0
	13-22	23-36	6.6-7.3	0	0.0-2.0	0
	22-42	13-27	6.6-7.8	0	0.0-2.0	0
	42-60	---	---	---	---	---
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
Mondovi	0-20	9.0-18	5.6-7.3	0	0.0-2.0	0
	20-60	7.0-20	7.4-7.8	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
237:						
McCue	0-7	10-24	5.6-7.3	0	0.0-2.0	0
	7-13	25-45	6.6-7.3	0	0.0-2.0	0
	13-22	23-36	6.6-7.3	0	0.0-2.0	0
	22-42	13-27	6.6-7.8	0	0.0-2.0	0
	42-60	---	---	---	---	---
Broadax, cemented substratum	0-6	6.0-20	5.6-7.3	0	0.0-2.0	0
	6-15	6.0-18	6.6-7.3	0	0.0-2.0	0
	15-25	16-24	6.6-7.8	0	0.0-2.0	0-5
	25-54	16-24	7.4-8.4	1-10	0.0-4.0	0-5
	54-60	---	---	---	---	---
Mondovi	0-20	9.0-18	5.6-7.3	0	0.0-2.0	0
	20-60	7.0-20	7.4-7.8	0	0.0-2.0	0
238:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
239:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
240:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
241:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
242:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
243:						
Morrow	0-8	6.0-18	5.6-7.3	0	0.0-2.0	0
	8-15	12-26	6.6-7.3	0	0.0-2.0	0
	15-26	18-32	7.4-7.8	0	0.0-2.0	0
	26-34	13-24	7.9-9.0	2-10	0.0-2.0	1-8
	34-44	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
243:						
Badge	0-8	7.0-16	6.6-7.8	0	0.0-2.0	0
	8-13	7.0-18	6.6-7.8	0	0.0-2.0	0
	13-28	17-24	6.6-7.8	0	0.0-2.0	0
	28-60	15-20	7.4-8.4	0	0.0-2.0	0
244:						
Nemire	0-16	4.0-15	5.6-7.8	0	0.0-2.0	0
	16-37	4.0-14	6.6-7.8	0	0.0-2.0	0
	37-47	3.0-12	6.6-7.8	0	0.0-2.0	0
	47-60	5.0-10	6.6-7.8	0	0.0-2.0	0
245:						
Nemire	0-24	3.0-13	5.6-7.8	0	0.0-2.0	0
	24-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
246:						
Nemire	0-14	3.0-13	5.6-7.8	0	0.0-2.0	0
	14-48	2.0-12	6.6-7.8	0	0.0-2.0	0
	48-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
247:						
Nespelem	0-10	7.0-15	5.6-7.3	0	0.0-2.0	0
	10-27	7.0-16	6.6-7.8	0	0.0-2.0	0-3
	27-31	7.0-16	7.4-9.6	1-15	2.0-4.0	2-13
	31-60	7.0-27	7.4-9.6	1-15	2.0-4.0	2-13
Nemire	0-14	3.0-13	5.6-7.8	0	0.0-2.0	0
	14-48	2.0-12	6.6-7.8	0	0.0-2.0	0
	48-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
248:						
Nespelem	0-10	7.0-15	5.6-7.3	0	0.0-2.0	0
	10-27	7.0-16	6.6-7.8	0	0.0-2.0	0-3
	27-31	7.0-16	7.4-9.6	1-15	2.0-4.0	2-13
	31-60	7.0-27	7.4-9.6	1-15	2.0-4.0	2-13
Nemire	0-14	3.0-13	5.6-7.8	0	0.0-2.0	0
	14-48	2.0-12	6.6-7.8	0	0.0-2.0	0
	48-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
249:						
Norax	0-4	10-22	5.6-7.3	0	0.0-2.0	0
	4-34	19-32	6.6-7.8	0	0.0-2.0	0
	34-54	7.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	54-60	3.0-13	7.4-8.4	1-15	0.0-2.0	0-5
250:						
Norax	0-4	10-22	5.6-7.3	0	0.0-2.0	0
	4-34	19-32	6.6-7.8	0	0.0-2.0	0
	34-54	7.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	54-60	3.0-13	7.4-8.4	1-15	0.0-2.0	0-5
Dutchenry	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
Dougville, cemented substratum	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
251:						
Norax	0-4	10-22	5.6-7.3	0	0.0-2.0	0
	4-34	19-32	6.6-7.8	0	0.0-2.0	0-5
	34-54	7.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	54-60	3.0-13	7.4-8.4	1-15	0.0-2.0	0-5
Dutchenry	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
Dougville, cemented substratum	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
252:						
Norax	0-4	10-22	5.6-7.3	0	0.0-2.0	0
	4-34	19-32	6.6-7.8	0	0.0-2.0	0
	34-54	7.0-16	7.4-8.4	1-8	0.0-2.0	0-5
	54-60	3.0-13	7.4-8.4	1-15	0.0-2.0	0-5
Dutchenry	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
Dougville, cemented substratum	0-9	5.0-16	5.6-7.8	0	0.0-2.0	0
	9-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-36	5.0-15	6.6-7.8	0	0.0-2.0	0
	36-58	6.0-16	7.4-8.4	0	0.0-2.0	0
	58-60	4.0-13	7.4-8.4	0-8	0.0-2.0	0-5
253:						
Pateros	0-7	4.0-17	6.6-7.3	0	0.0-2.0	0
	7-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-60	3.0-11	6.6-7.8	0	0.0-2.0	0
Rock outcrop	0-60	---	---	---	---	---
254:						
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2
255:						
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2
256:						
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2
257:						
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-20	4.0-14	6.6-7.8	0	0.0-2.0	0
	20-60	4.0-13	7.9-8.4	2-5	0.0-4.0	0-2
258:						
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-20	4.0-14	6.6-7.8	0	0.0-2.0	0
	20-60	4.0-13	7.9-8.4	2-5	0.0-4.0	0-2

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
259:						
Peshastin	0-9	4.0-11	7.4-7.8	0	0.0-2.0	0
	9-20	4.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	1.0-4.0	7.4-8.4	2-5	0.0-4.0	0-2
260:						
Peshastin	0-9	4.0-11	7.4-7.8	0	0.0-2.0	0
	9-20	4.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	1.0-4.0	7.4-8.4	2-5	0.0-4.0	0-2
261:						
Pogue	0-9	4.0-11	6.1-7.3	0	0.0-2.0	0
	9-24	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	24-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
262:						
Pogue	0-9	4.0-11	6.1-7.3	0	0.0-2.0	0
	9-24	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	24-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
263:						
Pogue	0-9	4.0-11	6.1-7.3	0	0.0-2.0	0
	9-24	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	24-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
264:						
Pogue	0-9	4.0-11	6.1-7.8	0	0.0-2.0	0
	9-26	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	26-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
265:						
Pogue	0-9	4.0-11	6.1-7.8	0	0.0-2.0	0
	9-26	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	26-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
266:						
Pogue	0-8	3.0-10	6.1-7.8	0	0.0-2.0	0
	8-18	3.0-9.0	6.1-7.8	0	0.0-2.0	0
	18-24	3.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
267:						
Pogue	0-13	3.0-10	6.1-7.8	0	0.0-2.0	0
	13-30	3.0-9.0	6.1-7.8	0	0.0-2.0	0
	30-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
268:						
Pogue	0-10	3.0-10	6.1-7.8	0	0.0-2.0	0
	10-15	3.0-9.0	6.1-7.8	0	0.0-2.0	0
	15-28	3.0-9.0	6.6-7.8	0	0.0-2.0	0
	28-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
269:						
Pogue	0-10	3.0-10	6.1-7.8	0	0.0-2.0	0
	10-20	3.0-9.0	6.1-7.8	0	0.0-2.0	0
	20-30	3.0-9.0	6.6-7.8	0	0.0-2.0	0
	30-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
270:						
Pogue	0-18	4.0-11	6.1-7.8	0	0.0-2.0	0
	18-25	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	25-60	0.0-4.0	6.6-8.4	0	0.0-2.0	0
271:						
Prosser	0-5	10-20	6.6-7.8	0	0.0-2.0	0
	5-16	10-20	7.4-8.4	0	0.0-2.0	0
	16-26	10-20	7.9-8.4	1-5	0.0-2.0	0
	26-36	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
271:						
Starbuck	0-5	2.0-6.0	6.6-7.8	0	0	0
	5-15	2.0-6.0	6.6-7.8	0	0	0
	15-19	---	---	0	0	0
272:						
Quincy	0-10	1.0-5.0	6.1-7.8	0	0	0
	10-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
273:						
Quincy	0-6	2.0-4.0	6.6-7.3	0	0.0-2.0	0
	6-42	0.0-2.0	6.6-7.8	0	0.0-2.0	0
	42-54	0.0-2.0	6.6-7.8	0-2	0.0-2.0	0
	54-60	0.0-4.0	6.6-7.8	0-2	0.0-2.0	0
274:						
Quincy	0-10	1.0-5.0	6.1-7.8	0	0	0
	10-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
275:						
Quincy	0-6	2.0-4.0	6.6-7.3	0	0.0-2.0	0
	6-60	0.0-2.0	6.6-7.8	0-2	0.0-2.0	0
DelRio	0-10	3.0-9.0	6.1-7.3	0	0.0-2.0	0
	10-60	2.0-10	6.6-7.8	0	0.0-2.0	0
Sanbee	0-8	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	8-25	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	25-30	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
	30-60	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
276:						
Quincy	0-10	1.0-5.0	6.1-7.8	0	0	0
	10-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
Ellisforde	0-10	4.0-13	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	26-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
Cashmere	0-11	4.0-11	6.1-7.8	0	0.0-2.0	0
	11-24	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-9.0	6.6-8.4	0-5	0.0-2.0	0-5
277:						
Quincy	0-10	1.0-5.0	6.1-7.8	0	0	0
	10-60	0.0-4.0	6.6-8.4	0-3	0.0-2.0	0
Ellisforde	0-10	4.0-13	6.6-7.8	0	0.0-2.0	0
	10-26	3.0-16	7.4-8.4	1-8	0.0-4.0	0-5
	26-60	2.0-16	7.9-9.0	2-15	0.0-4.0	1-8
Cashmere	0-11	4.0-11	6.1-7.8	0	0.0-2.0	0
	11-24	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	24-60	4.0-9.0	6.6-8.4	0-5	0.0-2.0	0-5
278:						
Quincy	0-6	2.0-4.0	6.6-7.3	0	0.0-2.0	0
	6-60	0.0-2.0	6.6-7.8	0-2	0.0-2.0	0
Sanbee	0-8	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	8-25	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	25-30	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
	30-60	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
DelRio	0-10	3.0-9.0	6.1-7.3	0	0.0-2.0	0
	10-60	2.0-10	6.6-7.8	0	0.0-2.0	0
279:						
Ralls	0-13	10-15	7.4-8.4	0	0.0-2.0	0
	13-44	10-15	7.4-8.4	0	0.0-2.0	0
	44-60	8.0-12	7.4-9.0	1-5	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
280:						
Ralls	0-13	10-15	7.4-8.4	0	0.0-2.0	0
	13-44	10-15	7.4-8.4	0	0.0-2.0	0
	44-60	8.0-12	7.4-9.0	1-5	0.0-2.0	1-8
281:						
Renshigh	0-4	8.0-18	5.6-7.3	0	0.0-2.0	0
	4-21	13-24	6.6-7.8	0	0.0-2.0	0
	21-57	10-20	7.4-8.4	1-8	0.0-2.0	1-8
	57-60	7.0-13	7.4-8.4	1-8	0.0-2.0	1-8
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Renslow, cemented substratum	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-22	6.0-14	6.6-7.8	0	0.0-2.0	0
	22-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-48	11-16	6.6-8.4	1-8	0.0-4.0	0
	48-60	---	---	---	---	---
282:						
Renshigh	0-4	8.0-18	5.6-7.3	0	0.0-2.0	0
	4-21	13-24	6.6-7.8	0	0.0-2.0	0
	21-57	10-20	7.4-8.4	1-8	0.0-2.0	1-8
	57-60	7.0-13	7.4-8.4	1-8	0.0-2.0	1-8
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Renslow, cemented substratum	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-22	6.0-14	6.6-7.8	0	0.0-2.0	0
	22-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-48	11-16	6.6-8.4	1-8	0.0-4.0	0
	48-60	---	---	---	---	---
283:						
Renslow	0-9	5.0-15	5.6-7.3	0	0.0-2.0	0
	9-23	6.0-14	6.6-7.8	0	0.0-2.0	0
	23-41	7.0-16	6.6-7.8	0	0.0-2.0	0
	41-60	7.0-16	7.9-9.0	1-8	0.0-2.0	0
284:						
Renslow	0-9	5.0-15	5.6-7.3	0	0.0-2.0	0
	9-23	6.0-14	6.6-7.8	0	0.0-2.0	0
	23-41	7.0-16	6.6-7.8	0	0.0-2.0	0
	41-60	7.0-16	7.9-9.0	1-8	0.0-2.0	0
285:						
Renslow	0-9	5.0-15	5.6-7.3	0	0.0-2.0	0
	9-23	6.0-14	6.6-7.8	0	0.0-2.0	0
	23-41	7.0-16	6.6-7.8	0	0.0-2.0	0
	41-60	7.0-16	7.9-9.0	1-8	0.0-2.0	0
286:						
Renslow	0-9	5.0-15	5.6-7.3	0	0.0-2.0	0
	9-23	6.0-14	6.6-7.8	0	0.0-2.0	0
	23-41	7.0-16	6.6-7.8	0	0.0-2.0	0
	41-60	7.0-16	7.9-9.0	1-8	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
287:						
Renslow	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-22	6.0-14	6.6-7.8	0	0.0-2.0	0
	22-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-48	11-16	6.6-8.4	1-8	0.0-4.0	0
	48-60	---	---	---	---	---
288:						
Renslow	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-22	6.0-14	6.6-7.8	0	0.0-2.0	0
	22-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-48	11-16	6.6-8.4	1-8	0.0-4.0	0
	48-60	---	---	---	---	---
289:						
Renslow	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-22	6.0-14	6.6-7.8	0	0.0-2.0	0
	22-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-48	11-16	6.6-8.4	1-8	0.0-4.0	0
	48-60	---	---	---	---	---
290:						
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-45	11-16	6.6-8.4	1-8	0.0-4.0	0
	45-60	---	---	---	---	---
Achelake	0-5	4.0-15	5.6-7.8	0	0.0-2.0	0
	5-20	4.0-14	6.6-8.4	0	0.0-2.0	0
	20-60	3.0-12	7.4-8.4	0	0.0-2.0	0
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
291:						
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-45	11-16	6.6-8.4	1-8	0.0-4.0	0
	45-60	---	---	---	---	---
Achelake	0-5	4.0-15	5.6-7.8	0	0.0-2.0	0
	5-20	4.0-14	6.6-8.4	0	0.0-2.0	0
	20-60	3.0-12	7.4-8.4	0	0.0-2.0	0
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
292:						
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-45	11-16	6.6-8.4	1-8	0.0-4.0	0
	45-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
292:						
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Kester	0-10	3.0-11	5.6-7.3	0	0.0-2.0	0
	10-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-32	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	32-42	---	---	---	---	---
293:						
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0-5
	29-45	11-16	6.6-8.4	1-8	0.0-4.0	0
	45-60	---	---	---	---	---
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Kester	0-10	3.0-11	5.6-7.3	0	0.0-2.0	0
	10-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-32	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	32-42	---	---	---	---	---
294:						
Renslow, cemented substratum	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-15	6.0-15	6.1-7.3	0	0.0-2.0	0
	15-29	7.0-16	6.6-8.4	0-3	0.0-2.0	0
	29-45	11-16	6.6-8.4	1-8	0.0-4.0	0
	45-60	---	---	---	---	---
Alstown	0-13	6.0-11	5.6-7.3	0	0.0-2.0	0
	13-33	9.0-16	6.6-7.8	0	0.0-2.0	0
	33-54	7.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	54-60	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Kester	0-10	3.0-11	5.6-7.3	0	0.0-2.0	0
	10-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-32	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	32-42	---	---	---	---	---
295:						
Ritzville	0-8	5.0-10	5.6-7.3	0	0.0-2.0	0
	8-19	5.0-10	6.6-7.8	0	0.0-2.0	0
	19-26	4.0-10	6.6-7.8	0	0.0-2.0	0
	26-40	3.0-10	7.4-7.8	0	0.0-2.0	0
	40-50	3.0-10	7.9-8.4	1-8	0.0-2.0	1-5
	50-60	3.0-10	7.9-9.0	1-15	0.0-2.0	1-8
296:						
Ritzville	0-7	5.0-10	5.6-7.3	0	0.0-2.0	0
	7-14	5.0-10	6.6-7.8	0	0.0-2.0	0
	14-28	4.0-10	6.6-7.8	0	0.0-2.0	0
	28-42	3.0-10	7.4-7.8	0	0.0-2.0	0
	42-52	3.0-10	7.9-8.4	1-8	0.0-2.0	1-5
	52-60	3.0-10	7.9-9.0	1-15	0.0-2.0	1-8
297:						
Ritzville	0-10	5.0-10	5.6-7.8	0	0.0-2.0	0
	10-33	5.0-10	6.6-7.8	0	0.0-2.0	0
	33-50	5.0-10	7.9-9.0	1-15	0.0-2.0	1-8
	50-60	3.0-10	7.9-9.0	1-15	0.0-4.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
298:						
Ritzville	0-10	5.0-10	5.6-7.8	0	0.0-2.0	0
	10-33	5.0-10	6.6-7.8	0	0.0-2.0	0
	33-50	5.0-10	7.9-9.0	1-15	0.0-2.0	1-8
	50-60	3.0-10	7.9-9.0	1-15	0.0-4.0	1-8
299:						
Ritzville	0-10	5.0-10	5.6-7.8	0	0.0-2.0	0
	10-33	5.0-10	6.6-7.8	0	0.0-2.0	0
	33-50	5.0-10	7.9-9.0	1-15	0.0-2.0	1-8
	50-60	3.0-10	7.9-9.0	1-15	0.0-4.0	1-8
300:						
Ritzville	0-10	5.0-10	5.6-7.8	0	0.0-2.0	0
	10-33	5.0-10	6.6-7.8	0	0.0-2.0	0
	33-50	5.0-10	7.9-9.0	1-15	0.0-2.0	1-8
	50-60	3.0-10	7.9-9.0	1-15	0.0-4.0	1-8
301:						
Riverwash	0-60	---	---	---	---	---
302:						
Rock outcrop	0-60	---	---	---	---	---
Couleedam	0-4	3.0-15	6.6-7.8	0	0.0-2.0	0
	4-9	3.0-15	6.6-7.8	0	0.0-2.0	0
	9-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Roosevelt	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-26	3.0-13	6.6-7.8	0	0.0-2.0	0
	26-36	---	---	---	---	---
303:						
Rock outcrop	0-60	---	---	---	---	---
Ginnis	0-10	4.0-11	5.6-7.3	0	0.0-2.0	0
	10-20	4.0-9.0	6.1-7.3	0	0.0-2.0	0
	20-29	4.0-13	6.6-7.3	0	0.0-2.0	0
	29-35	4.0-13	6.6-7.3	0	0.0-2.0	0
	35-45	---	---	---	---	---
Swakane	0-8	5.0-16	6.1-7.3	0	0.0-2.0	0
	8-13	3.0-13	6.1-7.3	0	0.0-2.0	0
	13-18	3.0-13	6.6-7.8	0	0.0-2.0	0
	18-28	---	---	---	---	---
304:						
Roloff	0-11	5.0-18	6.6-7.8	0	0.0-2.0	0
	11-17	5.0-18	6.6-7.8	0	0.0-2.0	0
	17-29	5.0-18	7.4-9.0	0	0.0-2.0	0
	29-33	---	---	---	---	---
Bakeoven	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
305:						
Royal	0-10	1.0-6.0	6.6-7.8	0	0.0-2.0	0
	10-16	3.0-7.0	6.6-7.8	0	0.0-2.0	0
	16-60	1.0-7.0	7.9-9.0	1-5	0.0-2.0	1-8
306:						
Rubble land	0-60	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
307:						
Rubble land	0-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
307:						
Stemilt	0-9	7.0-16	6.6-7.3	0	0.0-2.0	0
	9-18	10-28	6.6-7.3	0	0.0-2.0	0
	18-40	20-32	6.6-7.3	0	0.0-2.0	0
	40-60	20-32	6.6-7.3	0	0.0-2.0	0
Rock outcrop	0-60	---	---	---	---	---
308:						
Sagehill	0-8	5.0-10	6.6-8.4	0	0.0-2.0	0
	8-19	5.0-10	6.6-8.4	0	0.0-2.0	0
	19-60	5.0-10	7.9-9.0	5-15	0.0-2.0	1-8
309:						
Sanbee	0-7	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	7-19	1.0-6.0	6.6-7.3	0	0.0-2.0	0
	19-60	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
310:						
Sanbee	0-8	3.0-7.0	6.6-7.3	0	0.0-2.0	0
	8-12	2.0-8.0	6.6-7.3	0	0.0-2.0	0
	12-60	1.0-3.0	6.6-7.8	0	0.0-2.0	0
311:						
Sanbee	0-7	3.0-7.0	6.1-7.3	0	0.0-2.0	0
	7-14	2.0-8.0	6.6-7.3	0	0.0-2.0	0
	14-28	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	28-37	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
	37-60	1.0-4.0	6.6-7.8	0-1	0.0-2.0	0
312:						
Sanbee	0-8	3.0-7.0	6.6-7.3	0	0.0-2.0	0
	8-12	2.0-8.0	6.6-7.3	0	0.0-2.0	0
	12-60	1.0-3.0	6.6-7.8	0	0.0-2.0	0
Quincy	0-6	2.0-4.0	6.6-7.3	0	0.0-2.0	0
	6-42	0.0-2.0	6.6-7.8	0	0.0-2.0	0
	42-54	0.0-2.0	6.6-7.8	0-2	0.0-2.0	0
	54-60	0.0-4.0	6.6-7.8	0-2	0.0-2.0	0
313:						
Schawana	0-3	1.0-4.0	7.4-7.8	0	0.0-2.0	0
	3-12	2.0-6.0	7.4-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
Schawana, cobbly	0-3	1.0-4.0	7.4-7.8	0	0.0-2.0	0
	3-12	2.0-6.0	7.4-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
314:						
Selah	0-16	7.0-20	5.6-7.3	0	0.0-2.0	0
	16-23	19-32	7.4-8.4	1-10	0.0-2.0	0
	23-31	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	31-35	---	---	---	---	---
	35-40	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	40-44	---	---	---	---	---
315:						
Sevar	0-5	5.0-16	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-15	6.6-7.8	0	0.0-2.0	0
	10-24	13-24	7.4-8.4	1-5	0.0-2.0	0
	24-28	10-16	7.9-8.4	1-5	0.0-2.0	0
	28-32	---	---	---	---	---
	32-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---
316:						
Shinn	0-4	7.0-15	6.1-7.3	0	0.0-2.0	0
	4-10	17-32	6.6-7.3	0	0.0-2.0	0
	10-14	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
316:						
Lorena----------	0-12	6.0-18	5.6-7.3	0	0.0-2.0	0
	12-25	13-27	6.1-7.3	0	0.0-2.0	0
	25-35	---	---	---	---	---
317:						
Silico----------	0-6	4.0-13	5.6-7.8	0	0.0-2.0	0
	6-12	4.0-15	7.4-7.8	0	0.0-2.0	0
	12-16	---	---	---	---	---
	16-21	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	21-31	---	---	---	---	---
318:						
Silico----------	0-6	4.0-13	5.6-7.8	0	0.0-2.0	0
	6-12	4.0-15	7.4-7.8	0	0.0-2.0	0
	12-16	---	---	---	---	---
	16-21	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	21-31	---	---	---	---	---
Sevar----------	0-5	5.0-16	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-15	6.6-7.8	0	0.0-2.0	0
	10-24	13-24	7.4-8.4	1-5	0.0-2.0	0
	24-28	10-16	7.9-8.4	1-5	0.0-2.0	0
	28-32	---	---	---	---	---
	32-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---
Dutchenry----------	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
319:						
Silico----------	0-6	4.0-13	5.6-7.8	0	0.0-2.0	0
	6-12	4.0-15	7.4-7.8	0	0.0-2.0	0
	12-16	---	---	---	---	---
	16-21	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	21-31	---	---	---	---	---
Sevar----------	0-5	5.0-16	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-15	6.6-7.8	0	0.0-2.0	0
	10-24	13-24	7.4-8.4	1-5	0.0-2.0	0
	24-28	10-16	7.9-8.4	1-5	0.0-2.0	0
	28-32	---	---	---	---	---
	32-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---
Dutchenry----------	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
320:						
Silico----------	0-6	4.0-13	5.6-7.8	0	0.0-2.0	0
	6-12	4.0-15	7.4-7.8	0	0.0-2.0	0
	12-16	---	---	---	---	---
	16-21	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	21-31	---	---	---	---	---
Sevar----------	0-5	5.0-16	5.6-7.8	0	0.0-2.0	0
	5-10	5.0-15	6.6-7.8	0	0.0-2.0	0
	10-24	13-24	7.4-8.4	1-5	0.0-2.0	0
	24-28	10-16	7.9-8.4	1-5	0.0-2.0	0
	28-32	---	---	---	---	---
	32-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
320:						
Dutchenry	0-7	4.0-15	5.6-7.3	0	0.0-2.0	0
	7-15	4.0-15	6.1-7.8	0	0.0-2.0	0
	15-33	4.0-15	6.6-7.8	0	0.0-2.0	0
	33-37	---	---	---	---	---
	37-42	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	42-52	---	---	---	---	---
321:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
322:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
323:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
324:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
Ellisforde	0-8	5.0-10	6.1-7.3	0	0.0-2.0	0
	8-18	4.0-16	6.6-7.8	0	0.0-2.0	0
	18-60	4.0-16	7.4-9.0	1-15	0.0-4.0	1-8
DelRio	0-13	3.0-9.0	5.6-7.3	0	0.0-2.0	0
	13-45	2.0-10	6.6-7.8	0	0.0-2.0	0
	45-60	3.0-5.0	6.6-7.8	0-3	0.0-2.0	0
325:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
Zeemal	0-8	4.0-14	7.9-8.4	1-15	0.0-4.0	0-5
	8-12	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	12-17	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	17-33	7.0-22	7.9-9.0	1-15	0.0-4.0	1-8
	33-60	10-32	7.4-9.0	1-15	0.0-4.0	1-8
326:						
Simsfield	0-12	4.0-14	6.1-7.3	0	0.0-2.0	0
	12-18	4.0-13	7.4-7.8	0	0.0-2.0	0
	18-28	6.0-16	7.4-8.4	1-5	0.0-4.0	0-3
	28-34	3.0-13	7.4-9.0	5-10	0.0-4.0	1-8
	34-60	3.0-16	7.4-9.0	0-10	0.0-4.0	1-8
Zeemal	0-8	4.0-14	7.9-8.4	1-15	0.0-4.0	0-5
	8-12	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	12-17	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	17-33	7.0-22	7.9-9.0	1-15	0.0-4.0	1-8
	33-60	10-32	7.4-9.0	1-15	0.0-4.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
327:						
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---
328:						
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---
329:						
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---
330:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
331:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
331:						
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
332:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
333:						
Siweeka, bedrock substrarum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
334:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
335:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
336:						
Siweeka, bedrock substratum----------	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Brazlan----------	0-8	5.0-15	6.6-7.3	0	0.0-2.0	0
	8-12	5.0-15	6.6-7.8	0	0.0-2.0	0
	12-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-34	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	34-38	---	---	---	---	---
Brazlan, extremely bouldery----------	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
337:						
Siweeka, bedrock substratum----------	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Brazlan----------	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-20	5.0-15	6.6-7.8	0	0.0-2.0	0
	20-24	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	24-32	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	32-36	---	---	---	---	---
Argabak----------	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
338:						
Siweeka, bedrock substratum----------	0-13	4.0-13	5.6-7.8	0	0.0-2.0	0
	13-27	4.0-13	6.6-8.4	0	0.0-2.0	0
	27-39	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	39-43	---	---	---	---	---
	43-47	---	---	---	---	---
Lickskillet----------	0-6	10-18	6.1-7.3	0	0.0-2.0	0
	6-12	14-24	6.6-7.8	0	0.0-2.0	0
	12-18	16-24	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
Argabak----------	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
339:						
Siweeka, bedrock substratum----------	0-13	4.0-13	5.6-7.8	0	0.0-2.0	0
	13-27	4.0-13	6.6-8.4	0	0.0-2.0	0
	27-39	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	39-43	---	---	---	---	---
	43-47	---	---	---	---	---
Stubblefield----------	0-12	5.0-15	6.1-7.3	0	0.0-2.0	0
	12-22	6.0-13	6.1-7.8	0	0.0-2.0	0
	22-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-41	---	---	---	---	---
	41-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
339:						
Timentwa	0-14	4.0-13	5.6-7.8	0	0.0-2.0	0
	14-33	4.0-13	6.1-7.8	0	0.0-2.0	0
	33-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
340:						
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
	48-52	---	---	---	---	---
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-27	4.0-13	6.1-7.8	0	0.0-2.0	0
	27-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
Dezellem	0-9	5.0-15	6.6-7.3	0	0.0-2.0	0
	9-30	5.0-15	7.4-8.4	0	0.0-2.0	0
	30-60	3.0-7.0	7.4-8.4	0	0.0-2.0	0
341:						
Siweeka	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-31	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	31-40	---	---	---	---	---
	40-60	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
Timentwa	0-14	4.0-13	5.6-7.8	0	0.0-2.0	0
	14-33	4.0-13	6.1-7.8	0	0.0-2.0	0
	33-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
Stubblefield	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-15	6.0-13	6.6-7.3	0	0.0-2.0	0
	15-27	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	27-57	---	---	---	---	---
	57-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
342:						
Skaha	0-6	1.0-4.0	6.1-7.3	0	0.0-2.0	0
	6-15	1.0-4.0	6.6-7.8	0	0.0-2.0	0
	15-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
343:						
Skaha	0-8	0.0-4.0	6.1-7.3	0	0.0-2.0	0
	8-22	0.0-4.0	6.6-7.8	0	0.0-2.0	0
	22-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
344:						
Skaha	0-8	0.0-4.0	6.1-7.3	0	0.0-2.0	0
	8-22	0.0-4.0	6.6-7.8	0	0.0-2.0	0
	22-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
345:						
Skaha	0-8	0.0-4.0	6.1-7.3	0	0.0-2.0	0
	8-22	0.0-4.0	6.6-7.8	0	0.0-2.0	0
	22-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
Quincy	0-6	2.0-4.0	6.6-7.3	0	0.0-2.0	0
	6-42	0.0-2.0	6.6-7.8	0	0.0-2.0	0
	42-54	0.0-2.0	6.6-7.8	0-2	0.0-2.0	0
	54-60	0.0-4.0	6.6-7.8	0-2	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
346:						
Skaha----------	0-9	4.0-13	6.1-7.3	0	0.0-2.0	0
	9-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
Tubspring----------	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-35	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	35-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
347:						
Slickear----------	0-10	5.0-16	5.6-7.3	0	0.0-2.0	0
	10-22	5.0-15	7.4-7.8	0	0.0-2.0	0
	22-46	13-25	7.4-9.0	1-15	0.0-2.0	13-20
	46-50	---	---	---	---	---
	50-55	5.0-15	7.9-8.4	1-10	0.0-2.0	5-13
	55-59	---	---	---	---	---
348:						
Slickear----------	0-10	5.0-16	5.6-7.3	0	0.0-2.0	0
	10-22	5.0-15	7.4-7.8	0	0.0-2.0	0
	22-46	13-25	7.4-9.0	1-15	0.0-2.0	13-20
	46-50	---	---	---	---	---
	50-55	5.0-15	7.9-8.4	1-10	0.0-2.0	5-13
	55-59	---	---	---	---	---
349:						
Slusser----------	0-8	5.0-13	5.6-7.3	0	0.0-2.0	0
	8-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-20	7.0-16	6.6-7.3	0	0.0-2.0	0
	20-52	7.0-16	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	6.6-8.4	0-5	0.0-2.0	0-3
350:						
Slusser----------	0-8	5.0-13	5.6-7.3	0	0.0-2.0	0
	8-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-20	7.0-16	6.6-7.3	0	0.0-2.0	0
	20-52	7.0-16	6.6-7.8	0	0.0-2.0	0
	52-60	7.0-16	6.6-8.4	0-5	0.0-2.0	0-3
351:						
Slusser----------	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-22	7.0-17	6.6-7.3	0	0.0-2.0	0
	22-46	7.0-16	6.6-7.8	0	0.0-2.0	0
	46-58	7.0-16	7.4-8.4	0-3	0.0-2.0	0
	58-60	---	---	---	---	---
352:						
Slusser----------	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-22	7.0-17	6.6-7.3	0	0.0-2.0	0
	22-46	7.0-16	6.6-7.8	0	0.0-2.0	0
	46-58	7.0-16	7.4-8.4	0-3	0.0-2.0	0
	58-60	---	---	---	---	---
353:						
Slusser----------	0-6	5.0-13	5.6-7.3	0	0.0-2.0	0
	6-11	5.0-14	6.6-7.8	0	0.0-2.0	0
	11-28	7.0-16	6.6-7.8	0	0.0-2.0	0
	28-41	7.0-16	7.4-8.4	0-1	0.0-2.0	0
	41-45	---	---	---	---	---
	45-50	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	50-60	---	---	---	---	---
354:						
Slusser, cemented substratum----------	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-22	7.0-17	6.6-7.3	0	0.0-2.0	0
	22-46	7.0-16	6.6-7.8	0	0.0-2.0	0
	46-58	7.0-16	7.4-8.4	0-3	0.0-2.0	0
	58-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
354:						
Alsash	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-11	5.0-14	6.6-7.3	0	0.0-2.0	0
	11-28	11-16	6.6-7.8	0	0.0-2.0	0
	28-60	3.0-7.0	7.4-9.0	1-8	0.0-2.0	1-8
Nemire, moist	0-8	4.0-15	5.6-7.8	0	0.0-2.0	0
	8-20	4.0-14	6.6-7.8	0	0.0-2.0	0
	20-60	3.0-12	6.6-7.8	0	0.0-2.0	0
355:						
Slusser, cemented substratum	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-12	5.0-14	6.6-7.3	0	0.0-2.0	0
	12-22	7.0-17	6.6-7.3	0	0.0-2.0	0
	22-46	7.0-16	6.6-7.8	0	0.0-2.0	0
	46-58	7.0-16	7.4-8.4	0-3	0.0-2.0	0
	58-60	---	---	---	---	---
Alsash	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-11	5.0-14	6.6-7.3	0	0.0-2.0	0
	11-28	11-16	6.6-7.8	0	0.0-2.0	0
	28-60	3.0-7.0	7.4-9.0	1-8	0.0-2.0	1-8
Nemire	0-8	4.0-15	5.6-7.8	0	0.0-2.0	0
	8-20	4.0-14	6.6-7.8	0	0.0-2.0	0
	20-60	3.0-12	6.6-7.8	0	0.0-2.0	0
356:						
Soaplake	0-4	4.0-11	6.6-7.3	0	0.0-2.0	0
	4-12	4.0-15	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
Roosevelt	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-26	3.0-13	6.6-7.8	0	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
357:						
Soaplake	0-4	4.0-11	6.6-7.3	0	0.0-2.0	0
	4-12	4.0-15	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
Roosevelt	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-26	3.0-13	6.6-7.8	0	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
358:						
Sprauer	0-8	4.0-12	5.6-7.3	0	0.0-2.0	0
	8-22	4.0-11	6.6-7.8	0	0.0-2.0	0
	22-30	3.0-12	7.4-8.4	1-8	0.0-2.0	0-5
	30-40	---	---	---	---	---
	40-44	---	---	---	---	---
359:						
Sprauer	0-8	4.0-12	5.6-7.3	0	0.0-2.0	0
	8-22	4.0-11	6.6-7.8	0	0.0-2.0	0
	22-30	3.0-12	7.4-8.4	1-8	0.0-2.0	0-5
	30-40	---	---	---	---	---
	40-44	---	---	---	---	---
360:						
St. Andrews	0-7	5.0-15	6.6-7.8	0	0.0-2.0	0
	7-14	5.0-15	6.6-7.8	0	0.0-2.0	0
	14-29	16-25	7.4-9.0	1-10	2.0-4.0	1-8
	29-33	---	---	---	---	---
	33-60	3.0-10	7.4-8.4	1-8	0.0-2.0	1-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
361:						
St. Andrews----------	0-7	5.0-15	6.6-7.8	0	0.0-2.0	0
	7-14	5.0-15	6.6-7.8	0	0.0-2.0	0
	14-29	16-25	7.4-9.0	1-10	2.0-4.0	1-8
	29-33	---	---	---	---	---
	33-60	3.0-10	7.4-8.4	1-8	0.0-2.0	1-5
362:						
Starbuck----------	0-5	2.0-6.0	6.6-7.8	0	0	0
	5-15	2.0-6.0	6.6-7.8	0	0	0
	15-25	---	---	0	0	0
Bakeoven----------	0-4	10-25	6.1-7.8	0	0	0
	4-7	10-30	6.6-7.8	0	0	0
	7-17	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
363:						
Stemilt----------	0-9	7.0-16	6.6-7.3	0	0.0-2.0	0
	9-18	10-28	6.6-7.3	0	0.0-2.0	0
	18-40	20-32	6.6-7.3	0	0.0-2.0	0
	40-60	20-32	6.6-7.3	0	0.0-2.0	0
Cordy----------	0-16	7.0-19	6.1-7.3	0	0.0-2.0	0
	16-21	7.0-13	6.1-7.3	0	0.0-2.0	0
	21-60	8.0-16	6.6-7.3	0	0.0-2.0	0
364:						
Strat----------	0-8	6.0-11	6.6-7.8	0	0.0-2.0	0
	8-18	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	18-27	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	27-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
365:						
Strat----------	0-8	6.0-11	6.6-7.8	0	0.0-2.0	0
	8-18	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	18-27	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	27-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
366:						
Strat----------	0-8	6.0-11	6.6-7.8	0	0.0-2.0	0
	8-18	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	18-27	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	27-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
367:						
Strat----------	0-8	5.0-10	6.6-8.4	0	0.0-2.0	0
	8-23	5.0-10	7.4-8.4	0	0.0-2.0	0
	23-60	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0
368:						
Strat----------	0-8	5.0-10	6.6-8.4	0	0.0-2.0	0
	8-23	5.0-10	7.4-8.4	0	0.0-2.0	0
	23-60	2.0-6.0	7.4-8.4	1-8	0.0-2.0	0
369:						
Strat----------	0-9	5.0-15	6.6-7.8	0	0.0-2.0	0
	9-24	7.0-14	6.6-7.8	0	0.0-2.0	0
	24-60	1.0-3.0	7.4-8.4	1-8	0.0-2.0	0
370:						
Strat----------	0-10	6.0-13	6.6-7.8	0	0.0-2.0	0
	10-22	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	22-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
371:						
Strat----------	0-9	5.0-11	6.6-7.8	0	0.0-2.0	0
	9-20	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
371:						
Tubspring	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-20	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	20-31	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	31-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
372:						
Strat	0-9	5.0-11	6.6-7.8	0	0.0-2.0	0
	9-20	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
Tubspring	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-20	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	20-31	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	31-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
373:						
Strat	0-18	5.0-11	6.6-7.8	0	0.0-2.0	0
	18-25	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	25-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
Tubspring	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-35	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	35-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
DelRio	0-14	3.0-9.0	5.6-7.3	0	0.0-2.0	0
	14-60	2.0-10	6.6-7.8	0	0.0-2.0	0
374:						
Strat	0-8	6.0-11	6.6-7.8	0	0.0-2.0	0
	8-36	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	36-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
Tubspring	0-10	3.0-11	5.6-7.3	0	0.0-2.0	0
	10-36	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	36-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
Nemire	0-10	3.0-13	5.6-7.8	0	0.0-2.0	0
	10-40	2.0-12	6.6-7.8	0	0.0-2.0	0
	40-60	2.0-4.0	7.4-7.8	0	0.0-2.0	0
375:						
Strat	0-18	5.0-11	6.6-7.8	0	0.0-2.0	0
	18-25	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	25-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
Tubspring	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-35	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	35-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
Skaha	0-9	4.0-13	6.1-7.3	0	0.0-2.0	0
	9-60	0.0-3.0	6.6-7.8	0	0.0-2.0	0
376:						
Stratford	0-7	4.0-15	6.6-7.8	0	0.0-2.0	0
	7-18	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	18-22	3.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	1.0-4.0	7.4-8.4	1-5	0.0-2.0	0
377:						
Stratford	0-7	4.0-15	6.6-7.8	0	0.0-2.0	0
	7-18	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	18-22	3.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	1.0-4.0	7.4-8.4	1-5	0.0-2.0	0
378:						
Stratford	0-7	4.0-15	6.6-7.8	0	0.0-2.0	0
	7-18	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	18-22	3.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	1.0-4.0	7.4-8.4	1-5	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
379:						
Stubblefield---	0-10	7.0-13	6.6-7.8	0	0.0-2.0	0
	10-28	4.0-11	6.6-7.8	0	0.0-2.0	0
	28-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
380:						
Supplee---	0-9	3.0-11	6.6-7.8	0	0.0-2.0	0
	9-18	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	18-27	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	27-60	0.0-1.0	6.6-8.4	0-2	0.0-2.0	0
381:						
Supplee---	0-9	3.0-11	6.6-7.8	0	0.0-2.0	0
	9-18	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	18-27	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	27-60	0.0-1.0	6.6-8.4	0-2	0.0-2.0	0
382:						
Tagear---	0-13	4.0-11	5.6-7.3	0	0.0-2.0	0
	13-34	3.0-10	7.4-8.4	0	0.0-2.0	0
	34-39	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	39-49	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	49-52	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	2.0-11	7.9-9.0	1-10	0.0-2.0	1-8
383:						
Tagear---	0-13	4.0-11	5.6-7.3	0	0.0-2.0	0
	13-34	3.0-10	7.4-8.4	0	0.0-2.0	0
	34-39	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	39-49	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	49-52	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	2.0-11	7.9-9.0	1-10	0.0-2.0	1-8
384:						
Tagear---	0-13	4.0-11	5.6-7.3	0	0.0-2.0	0
	13-34	3.0-10	7.4-8.4	0	0.0-2.0	0
	34-39	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	39-49	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	49-52	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	2.0-11	7.9-9.0	1-10	0.0-2.0	1-8
385:						
Taunton---	0-8	5.0-10	7.4-8.4	0	0.0-2.0	0
	8-19	10-20	7.4-9.0	0	0.0-2.0	0
	19-27	10-20	7.4-9.0	10-25	0.0-2.0	1-8
	27-37	---	---	---	---	---
	37-57	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	57-67	---	---	---	---	---
386:						
Taunton---	0-8	10-20	7.4-8.4	0	0.0-2.0	0
	8-19	10-20	7.4-9.0	0	0.0-2.0	0
	19-27	10-20	7.4-9.0	10-25	0.0-2.0	1-8
	27-37	---	---	---	---	---
	37-57	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	57-67	---	---	---	---	---
387:						
Taunton---	0-8	10-20	7.4-8.4	0	0.0-2.0	0
	8-19	10-20	7.4-9.0	0	0.0-2.0	0
	19-27	10-20	7.4-9.0	10-25	0.0-2.0	1-8
	27-37	---	---	---	---	---
	37-57	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	57-67	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
388:						
Taunton	0-8	10-20	7.4-8.4	0	0.0-2.0	0
	8-19	10-20	7.4-9.0	0	0.0-2.0	0
	19-27	10-20	7.4-9.0	10-25	0.0-2.0	1-8
	27-37	---	---	---	---	---
	37-57	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	57-67	---	---	---	---	---
Finley	0-8	5.0-10	7.4-8.4	0	0.0-2.0	0
	8-23	2.0-6.0	7.4-8.4	1-5	0.0-2.0	0
	23-60	0.0-2.0	7.4-8.4	1-5	0.0-2.0	0
389:						
Taunton	0-9	4.0-7.0	6.1-7.8	0	0.0-2.0	0
	9-20	3.0-11	7.4-8.4	0-1	0.0-2.0	0
	20-29	3.0-11	7.4-9.0	2-10	0.0-4.0	1-8
	29-33	---	---	---	---	---
	33-53	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	53-63	---	---	---	---	---
Scoon	0-6	4.0-10	6.6-8.4	0	0.0-2.0	0
	6-10	3.0-10	7.4-8.4	0	0.0-2.0	0
	10-13	3.0-10	7.4-9.0	5-15	0.0-4.0	1-8
	13-17	---	---	---	---	---
	17-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---
390:						
Taunton	0-9	4.0-7.0	6.1-7.8	0	0.0-2.0	0
	9-20	3.0-11	7.4-8.4	0-1	0.0-2.0	0
	20-29	3.0-11	7.4-9.0	2-10	0.0-4.0	1-8
	29-33	---	---	---	---	---
	33-53	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	53-63	---	---	---	---	---
Scoon	0-6	4.0-10	6.6-8.4	0	0.0-2.0	0
	6-10	3.0-10	7.4-8.4	0	0.0-2.0	0
	10-13	3.0-10	7.4-9.0	5-15	0.0-4.0	1-8
	13-17	---	---	---	---	---
	17-37	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	37-41	---	---	---	---	---
391:						
Terlan	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	13-24	6.1-7.3	0	0.0-2.0	0
	15-18	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
392:						
Terlan	0-8	5.0-15	5.6-7.3	0	0.0-2.0	0
	8-15	13-24	6.1-7.3	0	0.0-2.0	0
	15-18	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
Selah	0-16	7.0-20	5.6-7.3	0	0.0-2.0	0
	16-23	19-32	7.4-8.4	1-10	0.0-2.0	0
	23-31	4.0-22	7.9-9.0	1-10	0.0-2.0	1-8
	31-35	---	---	---	---	---
	35-40	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	40-44	---	---	---	---	---
393:						
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-27	4.0-13	6.1-7.8	0	0.0-2.0	0
	27-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
394:						
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-27	4.0-13	6.1-7.8	0	0.0-2.0	0
	27-51	4.0-11	6.6-8.4	1-8	0.0-2.0	0
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-8
395:						
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-27	4.0-13	6.1-7.8	0	0.0-2.0	0
	27-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
396:						
Timentwa, bedrock substratum	0-6	4.0-13	6.6-7.3	0	0.0-2.0	0
	6-22	4.0-13	6.6-7.8	0	0.0-2.0	0
	22-37	4.0-11	7.4-8.4	1-5	0.0-2.0	0-3
	37-50	3.0-11	7.4-8.4	1-5	0.0-2.0	0-3
	50-52	1.0-9.0	7.4-8.4	1-5	0.0-2.0	0-5
	52-60	---	---	---	---	---
Lickskillet	0-7	10-18	6.1-7.3	0	0.0-2.0	0
	7-15	14-24	6.6-7.8	0	0.0-2.0	0
	15-19	---	---	---	---	---
Argabak	0-3	10-18	6.6-7.8	0	0.0-2.0	0
	3-8	16-33	6.6-7.8	0	0.0-2.0	0
	8-12	---	---	---	---	---
397:						
Timentwa, bedrock substratum	0-6	4.0-13	6.6-7.3	0	0.0-2.0	0
	6-24	4.0-13	6.6-7.8	0	0.0-2.0	0
	24-44	4.0-11	7.4-8.4	1-5	0.0-2.0	0-3
	44-57	1.0-9.0	7.4-8.4	1-5	0.0-2.0	0-5
	57-60	---	---	---	---	---
Lickskillet	0-6	10-18	6.1-7.3	0	0.0-2.0	0
	6-12	14-24	6.6-7.8	0	0.0-2.0	0
	12-18	16-24	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
398:						
Timentwa	0-7	4.0-13	5.6-7.8	0	0.0-2.0	0
	7-36	4.0-13	6.1-7.8	0	0.0-2.0	0
	36-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
399:						
Timentwa	0-7	4.0-13	5.6-7.8	0	0.0-2.0	0
	7-36	4.0-13	6.1-7.8	0	0.0-2.0	0
	36-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---
400:						
Timentwa	0-7	4.0-13	5.6-7.8	0	0.0-2.0	0
	7-36	4.0-13	6.1-7.8	0	0.0-2.0	0
	36-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Siweeka, bedrock substratum	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-29	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	29-38	---	---	---	---	---
	38-48	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0-3
	48-52	---	---	---	---	---
401:						
Timentwa	0-7	4.0-13	5.6-7.8	0	0.0-2.0	0
	7-36	4.0-13	6.1-7.8	0	0.0-2.0	0
	36-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
Siweeka	0-9	4.0-13	5.6-7.8	0	0.0-2.0	0
	9-16	4.0-13	6.6-7.8	0	0.0-2.0	0
	16-27	3.0-13	6.6-8.4	0	0.0-2.0	0
	27-36	4.0-9.0	6.6-8.4	1-8	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	4.0-9.0	7.4-8.4	1-8	0.0-2.0	0
Brazlan	0-5	5.0-15	6.6-7.3	0	0.0-2.0	0
	5-13	5.0-15	6.6-7.8	0	0.0-2.0	0
	13-20	4.0-8.0	7.4-8.4	0	0.0-2.0	0
	20-25	1.0-7.0	7.4-8.4	0-3	0.0-2.0	0-3
	25-29	---	---	---	---	---
402:						
Timentwa	0-8	4.0-13	5.6-7.8	0	0.0-2.0	0
	8-29	4.0-13	6.1-7.8	0	0.0-2.0	0
	29-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
402:						
Siweeka	0-15	4.0-13	5.6-7.8	0	0.0-2.0	0
	15-21	4.0-13	6.6-8.4	0	0.0-2.0	0
	21-36	4.0-9.0	6.6-8.4	0	0.0-2.0	0
	36-42	---	---	---	---	---
	42-60	3.0-9.0	7.4-8.4	0-5	0.0-2.0	0
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
403:						
Timmerman	0-9	2.0-5.0	6.6-7.8	0	0.0-2.0	0
	9-20	1.0-7.0	6.6-7.8	0	0.0-2.0	0
	20-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
404:						
Timmerman	0-9	2.0-5.0	6.6-7.8	0	0.0-2.0	0
	9-20	1.0-7.0	6.6-7.8	0	0.0-2.0	0
	20-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
405:						
Timmerman	0-9	2.0-5.0	6.6-7.8	0	0.0-2.0	0
	9-20	1.0-7.0	6.6-7.8	0	0.0-2.0	0
	20-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
406:						
Titchenal	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-20	5.0-15	6.1-7.3	0	0.0-2.0	0
	20-57	7.0-16	6.6-7.8	0	0.0-2.0	0
	57-60	---	---	---	---	---
407:						
Titchenal	0-10	5.0-15	5.6-7.3	0	0.0-2.0	0
	10-20	5.0-15	6.1-7.3	0	0.0-2.0	0
	20-57	7.0-16	6.6-7.8	0	0.0-2.0	0
	57-60	---	---	---	---	---
408:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-36	---	---	---	---	---
409:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-42	---	---	---	---	---
410:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-42	---	---	---	---	---
411:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
412:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
413:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
414:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
415:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
416:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-36	---	---	---	---	---
Corbaley	0-4	3.0-11	6.6-7.3	0	0.0-2.0	0
	4-12	9.0-16	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
417:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-36	---	---	---	---	---
Corbaley	0-4	3.0-11	6.6-7.3	0	0.0-2.0	0
	4-12	9.0-16	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---
418:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0
	30-32	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	32-36	---	---	---	---	---
Corbaley	0-4	3.0-11	6.6-7.3	0	0.0-2.0	0
	4-12	9.0-16	6.6-7.8	0	0.0-2.0	0
	12-22	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
419:						
Toler----------	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
Horseflat----------	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
420:						
Toler----------	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
Horseflat----------	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
421:						
Toler----------	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0
	26-36	15-32	7.4-9.0	1-10	0.0-2.0	1-8
	36-40	---	---	---	---	---
Horseflat----------	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
422:						
Toler----------	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0-5
	26-36	15-32	7.4-9.0	1-12	0.0-2.0	1-10
	36-40	---	---	---	---	---
Horseflat----------	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
423:						
Toler----------	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0-5
	26-36	15-32	7.4-9.0	1-12	0.0-2.0	1-10
	36-40	---	---	---	---	---
Horseflat----------	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Benwy----------	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
424:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0-5
	26-36	15-32	7.4-9.0	1-12	0.0-2.0	1-10
	36-40	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Ralls, bedrock substratum	0-10	5.0-10	5.6-7.3	0	0.0-2.0	0
	10-20	10-16	7.4-8.4	0	0.0-2.0	0
	20-32	16-27	7.4-8.4	0-5	0.0-2.0	0
	32-52	16-27	7.4-9.0	0-10	0.0-2.0	1-8
	52-56	---	---	---	---	---
425:						
Toler	0-10	5.0-13	5.6-7.3	0	0.0-2.0	0
	10-14	7.0-16	6.6-7.8	0	0.0-2.0	0
	14-26	13-27	6.6-7.8	0	0.0-2.0	0-5
	26-36	15-32	7.4-9.0	1-12	0.0-2.0	1-10
	36-40	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Ralls, bedrock substratum	0-10	5.0-10	5.6-7.3	0	0.0-2.0	0
	10-20	10-16	7.4-8.4	0	0.0-2.0	0
	20-32	16-27	7.4-8.4	0-5	0.0-2.0	0
	32-52	16-27	7.4-9.0	0-10	0.0-2.0	1-8
	52-56	---	---	---	---	---
426:						
Toler	0-13	5.0-13	5.6-7.3	0	0.0-2.0	0
	13-22	7.0-16	6.6-7.8	0	0.0-2.0	0
	22-30	13-27	6.6-7.8	0	0.0-2.0	0-5
	30-32	15-32	7.4-9.0	1-12	0.0-2.0	1-10
	32-36	---	---	---	---	---
Kester	0-10	3.0-11	5.6-7.3	0	0.0-2.0	0
	10-25	3.0-9.0	7.4-9.0	0	0.0-2.0	0
	25-32	2.0-8.0	7.4-9.0	0	0.0-2.0	0
	32-42	---	---	---	---	---
427:						
Torriorthents	0-10	1.0-7.0	6.6-7.8	0	0.0-2.0	0
	10-60	0.0-4.0	6.6-7.8	0-2	0.0-2.0	0
428:						
Touhey	0-12	4.0-11	5.6-7.8	0	0.0-2.0	0
	12-24	3.0-10	7.4-7.8	0	0.0-2.0	0
	24-38	4.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	38-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Touhey, bedrock substratum	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
429:						
Touhey----------	0-12	4.0-11	5.6-7.8	0	0.0-2.0	0
	12-24	3.0-10	7.4-7.8	0	0.0-2.0	0
	24-38	4.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	38-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
430:						
Touhey----------	0-12	4.0-11	5.6-7.8	0	0.0-2.0	0
	12-24	3.0-10	7.4-7.8	0	0.0-2.0	0
	24-38	4.0-11	7.4-9.0	1-10	0.0-2.0	1-8
	38-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
431:						
Touhey----------	0-15	4.0-11	5.6-7.8	0	0.0-2.0	0
	15-31	3.0-10	7.4-7.8	0	0.0-2.0	0
	31-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
432:						
Touhey----------	0-15	4.0-11	5.6-7.8	0	0.0-2.0	0
	15-31	3.0-10	7.4-7.8	0	0.0-2.0	0
	31-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
433:						
Touhey----------	0-15	4.0-11	5.6-7.8	0	0.0-2.0	0
	15-38	3.0-10	7.4-7.8	0	0.0-2.0	0
	38-40	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	40-60	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
434:						
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Argabak----------	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
435:						
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
435:						
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
436:						
Touhey, bedrock substratum	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
437:						
Touhey, bedrock substratum	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Lickskillet	0-5	10-18	6.1-7.3	0	0.0-2.0	0
	5-9	14-24	6.6-7.8	0	0.0-2.0	0
	9-14	16-24	6.6-7.8	0	0.0-2.0	0
	14-18	---	---	---	---	---
Argabak	0-2	10-18	6.6-7.8	0	0.0-2.0	0
	2-10	16-33	6.6-7.8	0	0.0-2.0	0
	10-14	---	---	---	---	---
438:						
Touhey, bedrock substratum	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
439:						
Touhey, bedrock substratum	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Stubblefield	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
440:						
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Stubblefield---------	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
441:						
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Stubblefield---------	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
Stubblefield, extremely bouldery--	0-9	5.0-15	6.1-7.3	0	0.0-2.0	0
	9-20	6.0-13	6.6-7.3	0	0.0-2.0	0
	20-34	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	34-40	---	---	---	---	---
	40-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
442:						
Touhey, bedrock substratum----------	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-16	3.0-10	7.4-7.8	0	0.0-2.0	0
	16-21	4.0-9.0	7.4-7.8	0	0.0-2.0	0
	21-23	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	23-42	3.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	42-52	---	---	---	---	---
Stubblefield---------	0-10	5.0-15	6.1-7.3	0	0.0-2.0	0
	10-16	6.0-13	6.1-7.8	0	0.0-2.0	0
	16-30	6.0-13	7.4-8.4	1-8	0.0-2.0	0-5
	30-38	---	---	---	---	---
	38-60	6.0-16	7.4-9.0	1-10	0.0-2.0	1-8
Tagear----------	0-13	4.0-11	5.6-7.3	0	0.0-2.0	0
	13-34	3.0-10	7.4-8.4	0	0.0-2.0	0
	34-39	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	39-49	4.0-11	7.9-9.0	0-10	0.0-2.0	1-8
	49-52	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	52-60	2.0-11	7.9-9.0	1-10	0.0-2.0	1-8
443:						
Tubspring----------	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-20	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	20-31	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	31-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
444:						
Tubspring----------	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-20	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	20-31	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	31-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
445:						
Tubspring	0-9	3.0-11	5.6-7.3	0	0.0-2.0	0
	9-14	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	14-18	0.0-4.0	6.6-7.8	0	0.0-2.0	0
	18-60	0.0-4.0	6.6-8.4	1-5	0.0-2.0	0-3
446:						
Tubspring	0-12	3.0-11	5.6-7.3	0	0.0-2.0	0
	12-20	2.0-9.0	6.6-7.8	0	0.0-2.0	0
	20-31	2.0-7.0	6.6-7.8	0	0.0-2.0	0
	31-60	0.0-4.0	7.4-9.0	1-10	0.0-2.0	1-8
DelRio	0-13	3.0-9.0	5.6-7.3	0	0.0-2.0	0
	13-45	2.0-10	6.6-7.8	0	0.0-2.0	0
	45-60	3.0-5.0	6.6-7.8	0-3	0.0-2.0	0
Strat	0-9	5.0-11	6.6-7.8	0	0.0-2.0	0
	9-20	3.0-9.0	7.4-8.4	0	0.0-2.0	0
	20-60	0.0-2.0	7.4-8.4	1-8	0.0-2.0	1-5
447:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
448:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
449:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
450:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
451:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
452:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
452:						
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
453:						
Van Nostern	0-16	7.0-17	5.6-7.3	0	0.0-2.0	0
	16-28	13-26	6.6-7.8	0	0.0-2.0	0
	28-38	13-25	6.6-7.8	0	0.0-2.0	0
	38-48	---	---	---	---	---
Camaspatch	0-7	14-26	6.1-7.3	0	0.0-2.0	0
	7-10	19-34	6.1-7.3	0	0.0-2.0	0
	10-18	28-45	6.1-7.3	0	0.0-2.0	0
	18-28	---	---	---	---	---
454:						
Vitrandic Argixerolls	0-4	5.0-16	6.6-7.3	0	0	0
	4-25	5.0-15	6.6-7.8	0	0	0
	25-31	5.0-15	6.6-7.8	0	0	0
	31-37	10-24	6.6-7.8	0	0.0-2.0	0-2
	37-57	19-45	6.6-9.0	0-15	0.0-4.0	0-8
	57-67	---	---	---	---	---
Vitrandic Argixerolls, stony	0-4	5.0-16	6.6-7.3	0	0	0
	4-11	5.0-15	6.6-7.8	0	0	0
	11-16	10-24	6.6-7.8	0	0	0
	16-53	14-36	6.6-8.4	0-5	0.0-2.0	0-2
	53-58	14-40	6.6-9.0	0-15	0.0-4.0	0-8
	58-68	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
455:						
Warden	0-10	4.0-9.0	6.1-7.8	0	0.0-2.0	0
	10-30	6.0-13	6.6-7.8	0	0.0-2.0	0
	30-60	6.0-13	7.9-9.0	1-10	0.0-4.0	1-8
456:						
Watco	0-6	5.0-13	6.6-7.8	0	0.0-2.0	0
	6-22	6.0-12	7.4-7.8	0	0.0-2.0	0
	22-42	6.0-12	7.4-7.8	0	0.0-2.0	0
	42-58	3.0-8.0	7.4-7.8	0	0.0-2.0	0
	58-60	3.0-8.0	7.9-8.4	0-1	0.0-2.0	0
457:						
Watco	0-4	5.0-13	6.6-7.8	0	0.0-2.0	0
	4-13	6.0-12	6.6-7.8	0	0.0-2.0	0
	13-47	6.0-12	6.6-7.8	0	0.0-2.0	0
	47-60	3.0-9.0	7.4-8.4	0-1	0.0-2.0	0
Dezellem	0-4	5.0-15	6.6-7.3	0	0.0-2.0	0
	4-18	5.0-15	6.6-7.8	0	0.0-2.0	0
	18-24	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	24-36	3.0-7.0	7.4-8.4	0	0.0-2.0	0
	36-60	3.0-7.0	7.4-8.4	1-8	0.0-2.0	0-5
Timentwa	0-7	4.0-13	5.6-7.8	0	0.0-2.0	0
	7-36	4.0-13	6.1-7.8	0	0.0-2.0	0
	36-51	4.0-11	6.6-8.4	1-8	0.0-2.0	1-5
	51-52	1.0-9.0	7.9-9.0	1-10	0.0-2.0	1-10
	52-60	3.0-13	7.4-9.0	1-10	0.0-2.0	1-5
458:						
Water	---	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
459:						
Waterflat	0-10	4.0-15	5.6-7.3	0	0.0-2.0	0
	10-30	4.0-14	6.6-7.8	0	0.0-2.0	0
	30-43	3.0-12	7.4-8.4	1-8	0.0-2.0	0
	43-60	2.0-27	7.4-8.4	1-8	0.0-2.0	0-3
460:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
461:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
462:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
463:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
464:						
Wellsdam	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-18	3.0-10	6.6-7.8	0	0.0-2.0	0
	18-38	3.0-10	7.4-7.8	0	0.0-2.0	0
	38-54	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	54-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
Couleedam	0-4	3.0-15	6.6-7.8	0	0.0-2.0	0
	4-9	3.0-15	6.6-7.8	0	0.0-2.0	0
	9-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
465:						
Wellsdam	0-6	4.0-11	6.6-7.8	0	0.0-2.0	0
	6-18	3.0-10	6.6-7.8	0	0.0-2.0	0
	18-38	3.0-10	7.4-7.8	0	0.0-2.0	0
	38-54	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	54-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
Couleedam	0-4	3.0-15	6.6-7.8	0	0.0-2.0	0
	4-9	3.0-15	6.6-7.8	0	0.0-2.0	0
	9-16	3.0-13	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
466:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
467:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2
468:						
Wellsdam	0-10	4.0-11	6.6-7.8	0	0.0-2.0	0
	10-27	3.0-10	7.4-7.8	0	0.0-2.0	0
	27-30	6.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
	30-60	3.0-9.0	7.4-8.4	1-5	0.0-2.0	0-2
Peshastin	0-12	4.0-11	6.6-7.8	0	0.0-2.0	0
	12-22	4.0-11	7.4-8.4	0	0.0-2.0	0
	22-60	3.0-9.0	7.4-8.4	2-5	0.0-4.0	0-2
469:						
Whiteye	0-7	5.0-13	5.6-7.3	0	0.0-2.0	0
	7-18	7.0-16	6.6-7.8	0	0.0-2.0	0
	18-22	---	---	---	---	---
	22-27	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	27-37	---	---	---	---	---
470:						
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
471:						
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
472:						
Willis	0-9	4.0-11	5.6-7.8	0	0.0-2.0	0
	9-17	7.0-13	7.4-8.4	0	0.0-2.0	0-2
	17-30	7.0-13	7.9-9.0	1-10	0.0-4.0	1-8
	30-34	---	---	---	---	---
	34-39	5.0-15	7.9-8.4	1-10	0.0-2.0	0
	39-49	---	---	---	---	---
473:						
Willock	0-8	4.0-13	5.6-7.3	0	0.0-2.0	0
	8-23	4.0-13	6.1-7.3	0	0.0-2.0	0
	23-34	6.0-14	6.6-7.3	0	0.0-2.0	0
	34-43	4.0-11	6.6-7.3	0	0.0-2.0	0
	43-60	3.0-11	6.6-7.3	0	0.0-2.0	0
474:						
Willock	0-8	4.0-13	5.6-7.3	0	0.0-2.0	0
	8-23	4.0-13	6.1-7.3	0	0.0-2.0	0
	23-34	6.0-14	6.6-7.3	0	0.0-2.0	0
	34-43	4.0-11	6.6-7.3	0	0.0-2.0	0
	43-60	3.0-11	6.6-7.3	0	0.0-2.0	0

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
475:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Willock, bedrock substratum----------	0-6	4.0-13	6.6-7.8	0	0.0-2.0	0
	6-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-41	3.0-11	7.4-7.8	0	0.0-2.0	0
	41-55	---	---	---	---	---
	55-60	---	---	---	---	---
476:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Willock, bedrock substratum----------	0-6	4.0-13	6.6-7.8	0	0.0-2.0	0
	6-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-41	3.0-11	7.4-7.8	0	0.0-2.0	0
	41-55	---	---	---	---	---
	55-60	---	---	---	---	---
477:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Willock, bedrock substratum----------	0-6	4.0-13	6.6-7.8	0	0.0-2.0	0
	6-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-41	3.0-11	7.4-7.8	0	0.0-2.0	0
	41-55	---	---	---	---	---
	55-60	---	---	---	---	---
478:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
479:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
480:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Conconully, bedrock substratum----------	0-6	4.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	4.0-13	6.6-7.3	0	0.0-2.0	0
	12-25	4.0-12	6.6-7.3	0	0.0-2.0	0
	25-35	3.0-10	6.6-7.3	0	0.0-2.0	0
	35-50	3.0-10	6.6-7.8	0	0.0-2.0	0
	50-60	---	---	---	---	---
481:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Watco----------	0-5	5.0-13	6.6-7.8	0	0.0-2.0	0
	5-18	6.0-12	7.4-7.8	0	0.0-2.0	0
	18-42	6.0-12	7.4-7.8	0	0.0-2.0	0
	42-58	3.0-8.0	7.4-7.8	0	0.0-2.0	0
	58-60	3.0-8.0	7.9-8.4	0-1	0.0-2.0	0
482:						
Willock, cemented substratum----------	0-10	4.0-13	5.6-7.8	0	0.0-2.0	0
	10-20	4.0-13	6.6-7.8	0	0.0-2.0	0
	20-30	3.0-11	6.6-7.8	0	0.0-2.0	0
	30-42	4.0-11	7.4-7.8	0	0.0-2.0	0
	42-46	2.0-9.0	7.9-9.0	1-10	0.0-2.0	1-8
	46-60	3.0-11	7.9-9.0	1-10	0.0-2.0	1-8
Watco----------	0-5	5.0-13	6.6-7.8	0	0.0-2.0	0
	5-18	6.0-12	7.4-7.8	0	0.0-2.0	0
	18-42	6.0-12	7.4-7.8	0	0.0-2.0	0
	42-58	3.0-8.0	7.4-7.8	0	0.0-2.0	0
	58-60	3.0-8.0	7.9-8.4	0-1	0.0-2.0	0
483:						
Winblow----------	0-7	4.0-12	5.6-7.8	0	0.0-2.0	0
	7-16	4.0-11	6.6-8.4	0-3	0.0-2.0	0
	16-22	3.0-12	6.6-8.4	0-3	0.0-2.0	0
	22-28	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	28-30	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	30-40	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
484:						
Winblow	0-7	4.0-12	5.6-7.8	0	0.0-2.0	0
	7-16	4.0-11	6.6-8.4	0-3	0.0-2.0	0
	16-22	3.0-12	6.6-8.4	0-3	0.0-2.0	0
	22-28	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	28-30	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	30-40	---	---	---	---	---
485:						
Winblow	0-6	4.0-12	5.6-7.8	0	0.0-2.0	0
	6-10	4.0-11	6.6-8.4	0-3	0.0-2.0	0
	10-39	3.0-12	6.6-8.4	0-5	0.0-2.0	0
	39-49	---	---	---	---	---
Argabak	0-4	10-18	6.6-7.8	0	0.0-2.0	0
	4-7	16-33	6.6-7.8	0	0.0-2.0	0
	7-11	---	---	---	---	---
Horseflat	0-6	5.0-14	6.6-7.8	0	0.0-2.0	0
	6-17	10-20	6.6-7.8	0	0.0-2.0	0
	17-27	---	---	---	---	---
486:						
Xerofluvents	0-6	1.0-4.0	6.6-7.8	0	0.0-2.0	0
	6-60	0.0-3.0	6.6-7.8	0-2	0.0-2.0	0
Beverly	0-5	4.0-9.0	6.6-7.8	0	0.0-2.0	0
	5-20	4.0-7.0	6.6-7.8	0	0.0-2.0	0
	20-60	0.0-4.0	6.6-7.8	0	0.0-2.0	0
487:						
Zeemal	0-8	4.0-14	7.9-8.4	1-15	0.0-4.0	0-5
	8-12	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	12-17	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	17-33	7.0-22	7.9-9.0	1-15	0.0-4.0	1-8
	33-60	10-32	7.4-9.0	1-15	0.0-4.0	1-8
488:						
Zeemal	0-8	4.0-14	7.9-8.4	1-15	0.0-4.0	0-5
	8-12	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	12-17	4.0-13	7.9-9.0	1-15	0.0-4.0	1-8
	17-33	7.0-22	7.9-9.0	1-15	0.0-4.0	1-8
	33-60	10-32	7.4-9.0	1-15	0.0-4.0	1-8
489:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
490:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
491:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
492:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
493:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Argabak	0-5	10-18	6.6-7.8	0	0.0-2.0	0
	5-9	16-33	6.6-7.8	0	0.0-2.0	0
	9-13	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
494:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
495:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
496:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Benwy	0-6	6.0-13	5.6-7.3	0	0.0-2.0	0
	6-12	7.0-14	6.6-7.3	0	0.0-2.0	0
	12-29	7.0-16	6.6-7.8	0	0.0-2.0	0
	29-44	17-32	7.9-9.0	1-10	0.0-4.0	1-8
	44-47	---	---	---	---	---
	47-57	---	---	---	---	---
497:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Ralls, bedrock substratum	0-10	5.0-10	5.6-7.3	0	0.0-2.0	0
	10-20	10-16	7.4-8.4	0	0.0-2.0	0
	20-32	16-27	7.4-8.4	0-5	0.0-2.0	0
	32-52	16-27	7.4-9.0	0-10	0.0-2.0	1-8
	52-56	---	---	---	---	---

Table 8.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
498:						
Zen	0-15	6.0-15	5.6-7.8	0	0.0-2.0	0
	15-27	13-25	6.6-8.4	0	0.0-2.0	0
	27-36	13-32	7.4-9.0	2-10	0.0-2.0	1-8
	36-46	---	---	---	---	---
Horseflat	0-8	6.0-15	6.6-7.8	0	0.0-2.0	0
	8-13	10-20	6.6-7.8	0	0.0-2.0	0
	13-16	14-32	6.6-7.8	0	0.0-2.0	0
	16-26	---	---	---	---	---
Ralls, bedrock substratum	0-10	5.0-10	5.6-7.3	0	0.0-2.0	0
	10-20	10-16	7.4-8.4	0	0.0-2.0	0
	20-32	16-27	7.4-8.4	0-5	0.0-2.0	0
	32-52	16-27	7.4-9.0	0-10	0.0-2.0	1-8
	52-56	---	---	---	---	---
499:						
Zen	0-13	10-20	6.1-7.8	0	0.0-2.0	0
	13-24	10-20	6.6-8.4	0	0.0-2.0	0
	24-28	10-20	7.4-9.0	2-10	0.0-2.0	1-8
	28-38	---	---	---	---	---
Lickskillet	0-4	5.0-15	6.1-7.3	0	0	0
	4-15	10-20	6.6-7.3	0	0	0
	15-19	---	---	---	---	---
Ralls	0-13	10-15	7.4-8.4	0	0.0-2.0	0
	13-44	10-15	7.4-8.4	0	0.0-2.0	0
	44-60	8.0-12	7.4-9.0	1-5	0.0-2.0	1-8
500:						
Pits	---	---	---	---	---	---

Table 9.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
1:									
Aarup	D	Jan-Dec	---	---	---	---	None	---	None
2:									
Aarup	D	Jan-Dec	---	---	---	---	None	---	None
3:									
Aarup	D	Jan-Dec	---	---	---	---	None	---	None
Aarup, eroded	D	Jan-Dec	---	---	---	---	None	---	None
4:									
Achelake	B	Jan-Dec	---	---	---	---	None	---	None
5:									
Aeneas	B	Jan-Dec	---	---	---	---	None	---	None
6:									
Alecanyon	A	Jan-Dec	---	---	---	---	None	---	None
7:									
Alecanyon	A	Jan-Dec	---	---	---	---	None	---	None
8:									
Alecanyon	A	Jan-Dec	---	---	---	---	None	---	None
Cachebutte	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
9:									
Alecanyon	A								
		Jan-Dec	---	---	---	---	None	---	None
Cachebutte	B								
		Jan-Dec	---	---	---	---	None	---	None
10:									
Alecanyon	A								
		Jan-Dec	---	---	---	---	None	---	None
Cachebutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
11:									
Alsash	B								
		Jan-Dec	---	---	---	---	None	---	None
12:									
Alsash	B								
		Jan-Dec	---	---	---	---	None	---	None
Slusser, indurated substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
13:									
Alsash	B								
		Jan-Dec	---	---	---	---	None	---	None
Slusser, indurated substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
14:									
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
15:									
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
16:									
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Cheviot	B								
		Jan-Dec	---	---	---	---	None	---	None
17:									
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
18:									
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
19:									
Aquolls	D								
		January	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		February	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		March	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		April	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		May	0.0-1.0	>6.0	---	---	None	Long	Frequent
20:									
Aquolls	D								
		January	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		February	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		March	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		April	0.0-1.0	>6.0	---	---	Rare	Long	Frequent
		May	0.0-1.0	>6.0	---	---	None	Long	Frequent
Halaquepts, cemented substratum	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
21:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
22:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
23:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
24:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Haploxerolls, wet	B								
		January	1.5-5.0	>6.0	---	---	None	---	None
		February	1.5-5.0	>6.0	---	---	None	---	None
		March	1.5-5.0	>6.0	---	---	None	---	None
		April	1.5-5.0	>6.0	---	---	None	---	None
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
25:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
26:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
26:									
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
27:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
28:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
29:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Nemire, moist	B								
		January	5.0-6.0	>6.0	---	---	None	---	None
		February	5.0-6.0	>6.0	---	---	None	---	None
		March	5.0-6.0	>6.0	---	---	None	---	None
		April	5.0-6.0	>6.0	---	---	None	---	None
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
30:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
31:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Tagear, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
32:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Timentwa, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
33:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Timentwa, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
34:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Winblow	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
35:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
36:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
37:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
38:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
39:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt	B								
		Jan-Dec	---	---	---	---	None	---	None
40:									
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt	B								
		Jan-Dec	---	---	---	---	None	---	None
41:									
Bagdad	B								
		Jan-Dec	---	---	---	---	None	---	None
42:									
Bagdad	B								
		Jan-Dec	---	---	---	---	None	---	None
43:									
Bagdad	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
44:									
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
45:									
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D								
		Jan-Dec	---	---	---	---	None	---	None
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
46:									
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
Roloff	C								
		Jan-Dec	---	---	---	---	None	---	None
47:									
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
48:									
Beca	C								
		Jan-Dec	---	---	---	---	None	---	None
49:									
Beca	C								
		Jan-Dec	---	---	---	---	None	---	None
50:									
Beca	C								
		Jan-Dec	---	---	---	---	None	---	None
51:									
Beca	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
51:									
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
52:									
Beca	C								
		Jan-Dec	---	---	---	---	None	---	None
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Slickear	B								
		Jan-Dec	---	---	---	---	None	---	None
53:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
54:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
55:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
56:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
57:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
Selah	C								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
58:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
Selah	C								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
59:									
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
Selah	C								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
60:									
Beverly	B								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
61:									
Brays	C								
		Jan-Dec	---	---	---	---	None	---	None
62:									
Brays	C								
		Jan-Dec	---	---	---	---	None	---	None
Entiat	D								
		Jan-Dec	---	---	---	---	None	---	None
63:									
Brays	C								
		Jan-Dec	---	---	---	---	None	---	None
Entiat	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
63:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
64:									
Broadax	B								
		Jan-Dec	---	---	---	---	None	---	None
65:									
Broadax	B								
		Jan-Dec	---	---	---	---	None	---	None
66:									
Broadax	B								
		Jan-Dec	---	---	---	---	None	---	None
67:									
Broadax	B								
		Jan-Dec	---	---	---	---	None	---	None
68:									
Broadax, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
Spofford	D								
		Jan-Dec	---	---	---	---	None	---	None
69:									
Broadax, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
Spofford	D								
		Jan-Dec	---	---	---	---	None	---	None
70:									
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
70:									
Titchenal	B								
		Jan-Dec	---	---	---	---	None	---	None
71:									
Burbank	A								
		Jan-Dec	---	---	---	---	None	---	None
72:									
Burbank	A								
		Jan-Dec	---	---	---	---	None	---	None
73:									
Burch	B								
		Jan-Dec	---	---	---	---	None	---	None
74:									
Burch	B								
		Jan-Dec	---	---	---	---	None	---	None
75:									
Burch	B								
		Jan-Dec	---	---	---	---	None	---	None
76:									
Cachebutte	B								
		Jan-Dec	---	---	---	---	None	---	None
77:									
Cachebutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Alecanyon	A								
		Jan-Dec	---	---	---	---	None	---	None
Haploxerolls, wet	B								
		January	1.5-5.0	>6.0	---	---	None	---	None
		February	1.5-5.0	>6.0	---	---	None	---	None
		March	1.5-5.0	>6.0	---	---	None	---	None
		April	1.5-5.0	>6.0	---	---	None	---	None
78:									
Cachebutte	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
78:									
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
Alecanyon	A								
		Jan-Dec	---	---	---	---	None	---	None
79:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
80:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
81:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
82:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
83:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
84:									
Cashmere	B								
		Jan-Dec	---	---	---	---	None	---	None
85:									
Cashmere, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None
86:									
Cashmere, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
87:									
Cashmont	B	Jan-Dec	---	---	---	---	None	---	None
88:									
Cashmont	B	Jan-Dec	---	---	---	---	None	---	None
89:									
Cashmont	B	Jan-Dec	---	---	---	---	None	---	None
90:									
Cashmont	B	Jan-Dec	---	---	---	---	None	---	None
91:									
Cashmont	B	Jan-Dec	---	---	---	---	None	---	None
92:									
Chelan, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
93:									
Chelan, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
94:									
Chelan, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
95:									
Chelan, bedrock substratum	B	Jan-Dec	---	---	---	---	None	---	None
96:									
Chelan, gravelly substratum	B	Jan-Dec	---	---	---	---	None	---	None
97:									
Chelan, gravelly substratum	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
98:									
Chelan, gravelly substratum	B	Jan-Dec	---	---	---	---	None	---	None
99:									
Cheviot	B	Jan-Dec	---	---	---	---	None	---	None
Ralls	B	Jan-Dec	---	---	---	---	None	---	None
Dougville	B	Jan-Dec	---	---	---	---	None	---	None
100:									
Cheviot	B	Jan-Dec	---	---	---	---	None	---	None
Ralls	B	Jan-Dec	---	---	---	---	None	---	None
Grinrod	C	Jan-Dec	---	---	---	---	None	---	None
101:									
Cheviot	B	Jan-Dec	---	---	---	---	None	---	None
Ralls	B	Jan-Dec	---	---	---	---	None	---	None
Rubble land	A	Jan-Dec	---	---	---	---	None	---	None
102:									
Conconully	C	Jan-Dec	---	---	---	---	None	---	None
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
103:									
Conconully	C	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
103:									
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
104:									
Conconully	C	Jan-Dec	---	---	---	---	None	---	None
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
105:									
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Swakane	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
106:									
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Swakane	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
107:									
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Swakane	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
108:									
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
108:									
Wagberg	B								
		Jan-Dec	---	---	---	---	None	---	None
109:									
Conconully, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Wagberg	B								
		Jan-Dec	---	---	---	---	None	---	None
110:									
Conconully, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Wagberg	B								
		Jan-Dec	---	---	---	---	None	---	None
111:									
Conconully, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Wagberg	B								
		Jan-Dec	---	---	---	---	None	---	None
112:									
Corbaley	D								
		Jan-Dec	---	---	---	---	None	---	None
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None
113:									
Cordy	B								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt	B								
		Jan-Dec	---	---	---	---	None	---	None
114:									
Dam	---	---	---	---	---	---	---	---	---
115:									
Deercut	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
116:									
Deercut	C								
		Jan-Dec	---	---	---	---	None	---	None
Aarup	D								
		Jan-Dec	---	---	---	---	None	---	None
Whiteye	D								
		Jan-Dec	---	---	---	---	None	---	None
117:									
Deercut	C								
		Jan-Dec	---	---	---	---	None	---	None
Aarup	D								
		Jan-Dec	---	---	---	---	None	---	None
Whiteye	D								
		Jan-Dec	---	---	---	---	None	---	None
118:									
Deercut	C								
		Jan-Dec	---	---	---	---	None	---	None
Aarup	D								
		Jan-Dec	---	---	---	---	None	---	None
Whiteye	D								
		Jan-Dec	---	---	---	---	None	---	None
119:									
DelRio	B								
		Jan-Dec	---	---	---	---	None	---	None
120:									
DelRio	B								
		Jan-Dec	---	---	---	---	None	---	None
121:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
122:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
123:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
124:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
125:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
126:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
127:									
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
127:									
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
128:									
Dinkels	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
129:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
130:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
131:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
132:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
133:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
134:									
Dougville	B								
		Jan-Dec	---	---	---	---	None	---	None
135:									
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
136:									
Dougville, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Farmer, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
137:									
Dougville, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Farmer, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C	Jan-Dec	---	---	---	---	None	---	None
138:									
Dougville, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Norax	B	Jan-Dec	---	---	---	---	None	---	None
Nemire	B	Jan-Dec	---	---	---	---	None	---	None
139:									
Drysel	C	Jan-Dec	---	---	---	---	None	---	None
140:									
Drysel	C	Jan-Dec	---	---	---	---	None	---	None
Wanapum	D	Jan-Dec	---	---	---	---	None	---	None
141:									
Durixerolls	C	Jan-Dec	---	---	---	---	None	---	None
Ellisforde	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
141:									
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
142:									
Durixerolls	C								
		Jan-Dec	---	---	---	---	None	---	None
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
143:									
Durixerolls	C								
		Jan-Dec	---	---	---	---	None	---	None
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
144:									
Durixerolls, moist	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None
Halaquepts, cemented substratum	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
145:									
Durixerolls, moist	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
145:									
Halaquepts, cemented substratum----------	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
146:									
Durixerolls------------------------------	C								
		Jan-Dec	---	---	---	---	None	---	None
Durixerolls, moist-----------------------	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None
Halaquepts, cemented substratum----------	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
147:									
Durixerolls, moist-----------------------	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None
Halaquepts-------------------------------	C								
		January	1.0-1.5	>6.0	---	---	Rare	---	None
		February	1.0-1.5	>6.0	---	---	Rare	---	None
		March	1.0-1.5	>6.0	---	---	Rare	---	None
		April	1.0-1.5	>6.0	---	---	Rare	---	None
148:									
Durixerolls, moist-----------------------	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None
Halaquepts-------------------------------	C								
		January	1.0-1.5	>6.0	---	---	Rare	---	None
		February	1.0-1.5	>6.0	---	---	Rare	---	None
		March	1.0-1.5	>6.0	---	---	Rare	---	None
		April	1.0-1.5	>6.0	---	---	Rare	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
149:									
Durixerolls	C								
		Jan-Dec	---	---	---	---	None	---	None
Durixerolls, moist	C								
		January	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		February	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		March	1.5-3.0	1.7-3.3	---	---	Rare	---	None
		April	1.5-3.0	1.7-3.3	---	---	Rare	---	None
Halaquepts, cemented substratum	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
150:									
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
151:									
Ebadlow	B								
		Jan-Dec	---	---	---	---	None	---	None
152:									
Ebadlow	B								
		Jan-Dec	---	---	---	---	None	---	None
Spofford	D								
		Jan-Dec	---	---	---	---	None	---	None
Badgermont	C								
		Jan-Dec	---	---	---	---	None	---	None
153:									
Ebadlow	B								
		Jan-Dec	---	---	---	---	None	---	None
Spofford	D								
		Jan-Dec	---	---	---	---	None	---	None
Badgermont	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
154:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
155:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
156:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
157:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
158:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
DelRio	B								
		Jan-Dec	---	---	---	---	None	---	None
Nyssaton	B								
		Jan-Dec	---	---	---	---	None	---	None
159:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
Halaquepts	C								
		January	1.0-1.5	>6.0	---	---	Rare	---	None
		February	1.0-1.5	>6.0	---	---	Rare	---	None
		March	1.0-1.5	>6.0	---	---	Rare	---	None
		April	1.0-1.5	>6.0	---	---	Rare	---	None
160:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
Nespelem	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
160:									
Nemire, moist	B								
		January	5.0-6.0	>6.0	---	---	None	---	None
		February	5.0-6.0	>6.0	---	---	None	---	None
		March	5.0-6.0	>6.0	---	---	None	---	None
		April	5.0-6.0	>6.0	---	---	None	---	None
161:									
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
Nyssaton	B								
		Jan-Dec	---	---	---	---	None	---	None
DelRio	B								
		Jan-Dec	---	---	---	---	None	---	None
162:									
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
163:									
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
164:									
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None
Leahy	C								
		January	4.0-5.0	>6.0	---	---	Rare	---	None
		February	4.0-5.0	>6.0	---	---	Rare	---	None
		March	4.0-5.0	>6.0	---	---	Rare	---	None
		April	4.0-5.0	>6.0	---	---	Rare	---	None
165:									
Entiat	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Torriorthents	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
166:									
Entiat	D								
		Jan-Dec	---	---	---	---	None	---	None
Roosevelt	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
167:									
Ephrata	B								
		Jan-Dec	---	---	---	---	None	---	None
168:									
Esquatzel	B								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
169:									
Esquatzel	B								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
170:									
Esquatzel	B								
		January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
171:									
Ewall	A								
		Jan-Dec	---	---	---	---	None	---	None
172:									
Ewall	A								
		Jan-Dec	---	---	---	---	None	---	None
Alecanyon	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
173:									
Farmer	B	Jan-Dec	---	---	---	---	None	---	None
174:									
Farmer	B	Jan-Dec	---	---	---	---	None	---	None
175:									
Farmer	B	Jan-Dec	---	---	---	---	None	---	None
176:									
Farmer	B	Jan-Dec	---	---	---	---	None	---	None
177:									
Farmer	B	Jan-Dec	---	---	---	---	None	---	None
178:									
Farrell	B	Jan-Dec	---	---	---	---	None	---	None
179:									
Finley	B	Jan-Dec	---	---	---	---	None	---	None
180:									
Finley	B	Jan-Dec	---	---	---	---	None	---	None
181:									
Finley	B	Jan-Dec	---	---	---	---	None	---	None
182:									
Ginnis	C	Jan-Dec	---	---	---	---	None	---	None
183:									
Ginnis	C	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
184:									
Ginnis	C								
		Jan-Dec	---	---	---	---	None	---	None
Swakane	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
185:									
Grinrod	C								
		Jan-Dec	---	---	---	---	None	---	None
Ralls	B								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
186:									
Grinrod	C								
		Jan-Dec	---	---	---	---	None	---	None
Ralls	B								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
187:									
Grinrod	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
188:									
Halaquepts	C								
		January	1.0-1.5	>6.0	---	---	Rare	---	None
		February	1.0-1.5	>6.0	---	---	Rare	---	None
		March	1.0-1.5	>6.0	---	---	Rare	---	None
		April	1.0-1.5	>6.0	---	---	Rare	---	None
Halaquepts, cemented substratum	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
189:									
Hanning	B								
		Jan-Dec	---	---	---	---	None	---	None
190:									
Hanning, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Badgermont	C								
		Jan-Dec	---	---	---	---	None	---	None
191:									
Hanning, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Badgermont	C								
		Jan-Dec	---	---	---	---	None	---	None
192:									
Haploxerolls	B								
		January	5.0-6.0	>6.0	---	---	None	---	None
		February	5.0-6.0	>6.0	---	---	None	---	None
		March	5.0-6.0	>6.0	---	---	None	---	None
		April	5.0-6.0	>6.0	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
193:									
Haploxerolls, wet	B								
		January	1.5-5.0	>6.0	---	---	None	---	None
		February	1.5-5.0	>6.0	---	---	None	---	None
		March	1.5-5.0	>6.0	---	---	None	---	None
		April	1.5-5.0	>6.0	---	---	None	---	None
194:									
Haploxerolls	B								
		January	5.0-6.0	>6.0	---	---	None	---	None
		February	5.0-6.0	>6.0	---	---	None	---	None
		March	5.0-6.0	>6.0	---	---	None	---	None
		April	5.0-6.0	>6.0	---	---	None	---	None
Aquolls	C								
		January	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
		February	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
		March	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
		April	1.0-1.5	>6.0	---	---	Rare	Brief	Occasional
Halaquepts, cemented substratum	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
195:									
Heytou	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
196:									
Heytou	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
197:									
Heytou	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
197:									
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
198:									
Heytou	C	Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
199:									
Heytou	C	Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
200:									
Heytou	C	Jan-Dec	---	---	---	---	None	---	None
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Strat	B	Jan-Dec	---	---	---	---	None	---	None
201:									
Jordy	C	Jan-Dec	---	---	---	---	None	---	None
202:									
Jordy	C	Jan-Dec	---	---	---	---	None	---	None
203:									
Jordy	C	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
204:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
205:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
206:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
207:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
208:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
209:									
Jordy	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
210:									
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
211:									
Kiakus	C								
		Jan-Dec	---	---	---	---	None	---	None
Shinn	D								
		Jan-Dec	---	---	---	---	None	---	None
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
212:									
Kiakus	C								
		Jan-Dec	---	---	---	---	None	---	None
Shinn	D								
		Jan-Dec	---	---	---	---	None	---	None
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
213:									
Kiona	B								
		Jan-Dec	---	---	---	---	None	---	None
214:									
Kiona	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
215:									
Leahy	C								
		January	4.0-5.0	>6.0	---	---	Rare	---	None
		February	4.0-5.0	>6.0	---	---	Rare	---	None
		March	4.0-5.0	>6.0	---	---	Rare	---	None
		April	4.0-5.0	>6.0	---	---	Rare	---	None
Elvedere	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
215:									
Halaquepts, cemented substratum----------	C								
		January	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		February	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		March	1.0-1.5	1.7-3.3	---	---	Rare	---	None
		April	1.0-1.5	1.7-3.3	---	---	Rare	---	None
216:									
Leidl----------	C								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt, bedrock substratum----------	B								
		Jan-Dec	---	---	---	---	None	---	None
217:									
Leidl----------	C								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt, bedrock substratum----------	B								
		Jan-Dec	---	---	---	---	None	---	None
218:									
Lickskillet----------	D								
		Jan-Dec	---	---	---	---	None	---	None
219:									
Lickskillet----------	D								
		Jan-Dec	---	---	---	---	None	---	None
220:									
Lickskillet----------	D								
		Jan-Dec	---	---	---	---	None	---	None
221:									
Lickskillet----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan----------	C								
		Jan-Dec	---	---	---	---	None	---	None
Dezellem----------	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
222:									
Logy	B								
		Jan-Dec	---	---	---	---	None	---	None
223:									
Logy	B								
		Jan-Dec	---	---	---	---	None	---	None
224:									
Logy	B								
		Jan-Dec	---	---	---	---	None	---	None
225:									
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
226:									
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
227:									
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax	B								
		Jan-Dec	---	---	---	---	None	---	None
228:									
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
Shinn	D								
		Jan-Dec	---	---	---	---	None	---	None
229:									
Magallon	B								
		Jan-Dec	---	---	---	---	None	---	None
230:									
Magallon	B								
		Jan-Dec	---	---	---	---	None	---	None
231:									
Malaga	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
232:									
Malaga	B								
		Jan-Dec	---	---	---	---	None	---	None
233:									
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
234:									
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
235:									
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
236:									
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Mondovi	B								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
237:									
McCue	C								
		Jan-Dec	---	---	---	---	None	---	None
Broadax, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
237:									
Mondovi	B								
		January	---	---	---	---	None	---	Rare
		February	---	---	---	---	None	---	Rare
		March	---	---	---	---	None	---	Rare
238:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
239:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
240:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
241:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
242:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
243:									
Morrow	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Badge	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
244:									
Nemire	B								
		January	5.0-6.0	>6.0	---	---	Rare	---	None
		February	5.0-6.0	>6.0	---	---	Rare	---	None
		March	5.0-6.0	>6.0	---	---	Rare	---	None
		April	5.0-6.0	>6.0	---	---	Rare	---	None
245:									
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
246:									
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
247:									
Nespelem	C								
		Jan-Dec	---	---	---	---	None	---	None
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
248:									
Nespelem	C								
		Jan-Dec	---	---	---	---	None	---	None
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
249:									
Norax	B								
		Jan-Dec	---	---	---	---	None	---	None
250:									
Norax	B								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
251:									
Norax	B								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
252:									
Norax	B								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
Dougville, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
253:									
Pateros	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
254:									
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
255:									
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
256:									
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
257:									
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
258:									
Peshastin	B	Jan-Dec	---	---	---	---	None	---	None
259:									
Peshastin	B	Jan-Dec	---	---	---	---	None	---	None
260:									
Peshastin	B	Jan-Dec	---	---	---	---	None	---	None
261:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
262:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
263:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
264:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
265:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
266:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
267:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
268:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
269:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
270:									
Pogue	B	Jan-Dec	---	---	---	---	None	---	None
271:									
Prosser	C	Jan-Dec	---	---	---	---	None	---	None
Starbuck	D	Jan-Dec	---	---	---	---	None	---	None
272:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
273:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
274:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
275:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
DelRio	B	Jan-Dec	---	---	---	---	None	---	None
Sanbee	B	Jan-Dec	---	---	---	---	None	---	None
276:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
Ellisforde	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
276:									
Cashmere	B	Jan-Dec	---	---	---	---	None	---	None
277:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
Ellisforde	B	Jan-Dec	---	---	---	---	None	---	None
Cashmere	B	Jan-Dec	---	---	---	---	None	---	None
278:									
Quincy	A	Jan-Dec	---	---	---	---	None	---	None
Sanbee	B	Jan-Dec	---	---	---	---	None	---	None
DelRio	B	Jan-Dec	---	---	---	---	None	---	None
279:									
Ralls	B	Jan-Dec	---	---	---	---	None	---	None
280:									
Ralls	B	Jan-Dec	---	---	---	---	None	---	None
281:									
Renshigh	B	Jan-Dec	---	---	---	---	None	---	None
Alstown	B	Jan-Dec	---	---	---	---	None	---	None
Renslow, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
282:									
Renshigh	B	Jan-Dec	---	---	---	---	None	---	None
Alstown	B	Jan-Dec	---	---	---	---	None	---	None
Renslow, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
283:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
284:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
285:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
286:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
287:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
288:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
289:									
Renslow	B	Jan-Dec	---	---	---	---	None	---	None
290:									
Renslow, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Achelake	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
290:									
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None
291:									
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Achelake	B								
		Jan-Dec	---	---	---	---	None	---	None
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None
292:									
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None
293:									
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None
294:									
Renslow, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Alstown	B								
		Jan-Dec	---	---	---	---	None	---	None
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
295:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
296:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
297:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
298:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
299:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
300:									
Ritzville	B								
		Jan-Dec	---	---	---	---	None	---	None
301:									
Riverwash	---								
		January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	None	---	None
		September	0.0-2.0	>6.0	---	---	None	---	None
		October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
302:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Couleedam	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
302:									
Roosevelt	C								
		Jan-Dec	---	---	---	---	None	---	None
303:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Ginnis	C								
		Jan-Dec	---	---	---	---	None	---	None
Swakane	D								
		Jan-Dec	---	---	---	---	None	---	None
304:									
Roloff	C								
		Jan-Dec	---	---	---	---	None	---	None
Bakeoven	D								
		Jan-Dec	---	---	---	---	None	---	None
305:									
Royal	B								
		Jan-Dec	---	---	---	---	None	---	None
306:									
Rubble land	---								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	---								
		Jan-Dec	---	---	---	---	None	---	None
307:									
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
Stemilt	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
308:									
Sagehill	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
309:									
Sanbee	B								
		Jan-Dec	---	---	---	---	None	---	None
310:									
Sanbee	A								
		Jan-Dec	---	---	---	---	None	---	None
311:									
Sanbee	B								
		Jan-Dec	---	---	---	---	None	---	None
312:									
Sanbee	A								
		Jan-Dec	---	---	---	---	None	---	None
Quincy	A								
		Jan-Dec	---	---	---	---	None	---	None
313:									
Schawana	D								
		Jan-Dec	---	---	---	---	None	---	None
Schawana, cobbly	D								
		Jan-Dec	---	---	---	---	None	---	None
314:									
Selah	C								
		Jan-Dec	---	---	---	---	None	---	None
315:									
Sevar	C								
		Jan-Dec	---	---	---	---	None	---	None
316:									
Shinn	D								
		Jan-Dec	---	---	---	---	None	---	None
Lorena	C								
		Jan-Dec	---	---	---	---	None	---	None
317:									
Silico	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
318:									
Silico	D								
		Jan-Dec	---	---	---	---	None	---	None
Sevar	C								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
319:									
Silico	D								
		Jan-Dec	---	---	---	---	None	---	None
Sevar	C								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
320:									
Silico	D								
		Jan-Dec	---	---	---	---	None	---	None
Sevar	C								
		Jan-Dec	---	---	---	---	None	---	None
Dutchenry	C								
		Jan-Dec	---	---	---	---	None	---	None
321:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	Rare	---	None
		February	3.0-5.0	>6.0	---	---	Rare	---	None
		March	3.0-5.0	>6.0	---	---	Rare	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
322:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
323:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
324:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	Rare	---	None
		February	3.0-5.0	>6.0	---	---	Rare	---	None
		March	3.0-5.0	>6.0	---	---	Rare	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
Ellisforde	B								
		Jan-Dec	---	---	---	---	None	---	None
DelRio	B								
		Jan-Dec	---	---	---	---	None	---	None
325:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
Zeemal	D								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
326:									
Simsfield	C								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
Zeemal	D								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
327:									
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
328:									
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
329:									
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
330:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None
331:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
332:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
332:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
333:									
Siweeka, bedrock substrarum	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
334:									
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
335:									
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
336:									
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan, extremely bouldery	C								
		Jan-Dec	---	---	---	---	None	---	None
337:									
Siweeka, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Brazlan	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
338:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None
339:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
340:									
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Dezellem	B	Jan-Dec	---	---	---	---	None	---	None
341:									
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
342:									
Skaha	A	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
343:									
Skaha	A								
		Jan-Dec	---	---	---	---	None	---	None
344:									
Skaha	A								
		Jan-Dec	---	---	---	---	None	---	None
345:									
Skaha	A								
		Jan-Dec	---	---	---	---	None	---	None
Quincy	A								
		Jan-Dec	---	---	---	---	None	---	None
346:									
Skaha	A								
		Jan-Dec	---	---	---	---	None	---	None
Tubspring	B								
		Jan-Dec	---	---	---	---	None	---	None
347:									
Slickear	B								
		Jan-Dec	---	---	---	---	None	---	None
348:									
Slickear	B								
		Jan-Dec	---	---	---	---	None	---	None
349:									
Slusser	B								
		Jan-Dec	---	---	---	---	None	---	None
350:									
Slusser	B								
		Jan-Dec	---	---	---	---	None	---	None
351:									
Slusser	B								
		Jan-Dec	---	---	---	---	None	---	None
352:									
Slusser	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
353:									
Slusser	B								
		Jan-Dec	---	---	---	---	None	---	None
354:									
Slusser, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Alsash	B								
		Jan-Dec	---	---	---	---	None	---	None
Nemire, moist	B								
		January	5.0-6.0	>6.0	---	---	None	---	None
		February	5.0-6.0	>6.0	---	---	None	---	None
		March	5.0-6.0	>6.0	---	---	None	---	None
		April	5.0-6.0	>6.0	---	---	None	---	None
355:									
Slusser, cemented substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Alsash	B								
		Jan-Dec	---	---	---	---	None	---	None
Nemire	B								
		Jan-Dec	---	---	---	---	None	---	None
356:									
Soaplake	D								
		Jan-Dec	---	---	---	---	None	---	None
Roosevelt	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
357:									
Soaplake	D								
		Jan-Dec	---	---	---	---	None	---	None
Roosevelt	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
357:									
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
358:									
Sprauer	C	Jan-Dec	---	---	---	---	None	---	None
359:									
Sprauer	C	Jan-Dec	---	---	---	---	None	---	None
360:									
St. Andrews	C	Jan-Dec	---	---	---	---	None	---	None
361:									
St. Andrews	C	Jan-Dec	---	---	---	---	None	---	None
362:									
Starbuck	D	Jan-Dec	---	---	---	---	None	---	None
Bakeoven	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
363:									
Stemilt	B	Jan-Dec	---	---	---	---	None	---	None
Cordy	B	Jan-Dec	---	---	---	---	None	---	None
364:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
365:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
366:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
367:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
368:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
369:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
370:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
371:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
372:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
373:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
DelRio	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
374:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
Nemire	B	Jan-Dec	---	---	---	---	None	---	None
375:									
Strat	B	Jan-Dec	---	---	---	---	None	---	None
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
Skaha	A	Jan-Dec	---	---	---	---	None	---	None
376:									
Stratford	B	Jan-Dec	---	---	---	---	None	---	None
377:									
Stratford	B	Jan-Dec	---	---	---	---	None	---	None
378:									
Stratford	B	Jan-Dec	---	---	---	---	None	---	None
379:									
Stubblefield	C	Jan-Dec	---	---	---	---	None	---	None
380:									
Supplee	B	Jan-Dec	---	---	---	---	None	---	None
381:									
Supplee	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
382:									
Tagear	B								
		Jan-Dec	---	---	---	---	None	---	None
383:									
Tagear	B								
		Jan-Dec	---	---	---	---	None	---	None
384:									
Tagear	B								
		Jan-Dec	---	---	---	---	None	---	None
385:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
386:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
387:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
388:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
Finley	B								
		Jan-Dec	---	---	---	---	None	---	None
389:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
Scoon	D								
		Jan-Dec	---	---	---	---	None	---	None
390:									
Taunton	C								
		Jan-Dec	---	---	---	---	None	---	None
Scoon	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
391:									
Terlan	D								
		Jan-Dec	---	---	---	---	None	---	None
392:									
Terlan	D								
		Jan-Dec	---	---	---	---	None	---	None
Selah	C								
		Jan-Dec	---	---	---	---	None	---	None
393:									
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
394:									
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
395:									
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
396:									
Timentwa, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
397:									
Timentwa, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
398:									
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
399:									
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
400:									
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Siweeka, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
401:									
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None
Siweeka	C	Jan-Dec	---	---	---	---	None	---	None
Brazlan	C	Jan-Dec	---	---	---	---	None	---	None
402:									
Timentwa	B	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
402:									
Siweeka	C								
		Jan-Dec	---	---	---	---	None	---	None
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None
403:									
Timmerman	B								
		Jan-Dec	---	---	---	---	None	---	None
404:									
Timmerman	B								
		Jan-Dec	---	---	---	---	None	---	None
405:									
Timmerman	B								
		Jan-Dec	---	---	---	---	None	---	None
406:									
Titchenal	B								
		Jan-Dec	---	---	---	---	None	---	None
407:									
Titchenal	B								
		Jan-Dec	---	---	---	---	None	---	None
408:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
409:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
410:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
411:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
412:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
413:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
414:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
415:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
416:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Corbaley	D								
		Jan-Dec	---	---	---	---	None	---	None
417:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Corbaley	D								
		Jan-Dec	---	---	---	---	None	---	None
418:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Corbaley	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
419:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
420:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
421:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
422:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
423:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
424:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
424:									
Ralls, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
425:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Ralls, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
426:									
Toler	C								
		Jan-Dec	---	---	---	---	None	---	None
Kester	C								
		Jan-Dec	---	---	---	---	None	---	None
427:									
Torriorthents	A								
		Jan-Dec	---	---	---	---	None	---	None
428:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
429:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
430:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
431:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
432:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
433:									
Touhey	C								
		Jan-Dec	---	---	---	---	None	---	None
434:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
435:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
436:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
437:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
437:									
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
438:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
439:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
440:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
441:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield, extremely bouldery	C								
		Jan-Dec	---	---	---	---	None	---	None
442:									
Touhey, bedrock substratum	C								
		Jan-Dec	---	---	---	---	None	---	None
Stubblefield	C								
		Jan-Dec	---	---	---	---	None	---	None
Tagear	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
443:									
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
444:									
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
445:									
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
446:									
Tubspring	B	Jan-Dec	---	---	---	---	None	---	None
DelRio	B	Jan-Dec	---	---	---	---	None	---	None
Strat	B	Jan-Dec	---	---	---	---	None	---	None
447:									
Van Nostern	C	Jan-Dec	---	---	---	---	None	---	None
448:									
Van Nostern	C	Jan-Dec	---	---	---	---	None	---	None
449:									
Van Nostern	C	Jan-Dec	---	---	---	---	None	---	None
450:									
Van Nostern	C	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
451:									
Van Nostern	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
452:									
Van Nostern	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
453:									
Van Nostern	C								
		Jan-Dec	---	---	---	---	None	---	None
Camaspatch	D								
		Jan-Dec	---	---	---	---	None	---	None
454:									
Vitrandic Argixerolls	C								
		Jan-Dec	---	---	---	---	None	---	None
Vitrandic Argixerolls, stony	B								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
455:									
Warden	B								
		Jan-Dec	---	---	---	---	None	---	None
456:									
Watco	B								
		Jan-Dec	---	---	---	---	None	---	None
457:									
Watco	B								
		Jan-Dec	---	---	---	---	None	---	None
Dezellem	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
457:									
Timentwa	B								
		Jan-Dec	---	---	---	---	None	---	None
458:									
Water	---	---	---	---	---	---	---	---	---
459:									
Waterflat	C								
		January	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		February	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		March	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		April	1.0-1.5	>6.0	---	---	None	Brief	Occasional
		December	1.0-1.5	>6.0	---	---	None	---	None
460:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
461:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
462:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
463:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
464:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
Couleedam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
465:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
465:									
Couleedam	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
466:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
467:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
468:									
Wellsdam	C								
		Jan-Dec	---	---	---	---	None	---	None
Peshastin	B								
		Jan-Dec	---	---	---	---	None	---	None
469:									
Whiteye	D								
		Jan-Dec	---	---	---	---	None	---	None
470:									
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None
471:									
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None
472:									
Willis	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
473:									
Willock	B	Jan-Dec	---	---	---	---	None	---	None
474:									
Willock	B	Jan-Dec	---	---	---	---	None	---	None
475:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Willock, bedrock substratum	B	Jan-Dec	---	---	---	---	None	---	None
476:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Willock, bedrock substratum	B	Jan-Dec	---	---	---	---	None	---	None
477:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Willock, bedrock substratum	B	Jan-Dec	---	---	---	---	None	---	None
478:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
479:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
480:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Conconully, bedrock substratum	C	Jan-Dec	---	---	---	---	None	---	None
481:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Watco	B	Jan-Dec	---	---	---	---	None	---	None
482:									
Willock, cemented substratum	B	Jan-Dec	---	---	---	---	None	---	None
Watco	B	Jan-Dec	---	---	---	---	None	---	None
483:									
Winblow	C	Jan-Dec	---	---	---	---	None	---	None
484:									
Winblow	C	Jan-Dec	---	---	---	---	None	---	None
485:									
Winblow	C	Jan-Dec	---	---	---	---	None	---	None
Argabak	D	Jan-Dec	---	---	---	---	None	---	None
Horseflat	D	Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
486:									
Xerofluvents	A								
		January	---	---	---	---	None	Brief	Frequent
		February	---	---	---	---	None	Brief	Frequent
		March	---	---	---	---	None	Brief	Frequent
		April	---	---	---	---	None	Brief	Frequent
		May	---	---	---	---	None	Brief	Frequent
		June	---	---	---	---	None	Brief	Frequent
		July	---	---	---	---	None	Brief	Frequent
Beverly	B								
		Jan-Dec	---	---	---	---	None	---	None
487:									
Zeemal	D								
		January	3.0-5.0	>6.0	---	---	Rare	---	None
		February	3.0-5.0	>6.0	---	---	Rare	---	None
		March	3.0-5.0	>6.0	---	---	Rare	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
488:									
Zeemal	D								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	---	---	None	---	None
		April	3.0-5.0	>6.0	---	---	None	---	None
489:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
490:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
491:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
492:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
493:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Argabak	D								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
494:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
495:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
496:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Benwy	B								
		Jan-Dec	---	---	---	---	None	---	None
497:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Ralls, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 9.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
498:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Horseflat	D								
		Jan-Dec	---	---	---	---	None	---	None
Ralls, bedrock substratum	B								
		Jan-Dec	---	---	---	---	None	---	None
499:									
Zen	C								
		Jan-Dec	---	---	---	---	None	---	None
Lickskillet	D								
		Jan-Dec	---	---	---	---	None	---	None
Ralls	B								
		Jan-Dec	---	---	---	---	None	---	None
500:									
Pits	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 10.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
1:									
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
2:									
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
3:									
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Aarup, eroded	Duripan	4-10	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
4:									
Achelake	---	---	---	---	0	---	High	Moderate	Moderate
5:									
Aeneas	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
6:									
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
7:									
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
8:									
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
8:									
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
9:									
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
10:									
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
11:									
Alsash	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
12:									
Alsash	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Slusser, indurated substratum	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
13:									
Alsash	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Slusser, indurated substratum	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					
14:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
15:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
16:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Cheviot	---	---	---	---	0	---	Moderate	Moderate	Low
17:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
18:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
18:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
19:									
Aquolls	---	---	---	---	0	---	High	High	Low
20:									
Aquolls	---	---	---	---	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
21:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
22:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
23:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
24:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Haploxerolls, wet	---	---	---	---	0	---	High	High	Low
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
25:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
26:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
27:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
28:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
29:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Nemire, moist	---	---	---	---	0	---	High	Moderate	Moderate
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
30:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
31:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Tagear, bedrock substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Lithic bedrock	45-65	---	Indurated					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
32:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
32:									
Timentwa, bedrock substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-65	---	Indurated					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
33:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Timentwa, bedrock substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-65	---	Indurated					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
34:									
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Winblow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
35:									
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
36:									
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
37:									
Badge	---	---	---	---	0	---	Moderate	High	Low
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
38:									
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
39:									
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
Stemilt	---	---	---	---	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
40:									
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
Stemilt	---	---	---	---	0	---	Moderate	Moderate	Low
41:									
Bagdad	---	---	---	---	0	---	High	Moderate	Moderate
42:									
Bagdad	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
43:									
Bagdad	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
44:									
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
45:									
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Zen	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Low
46:									
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Roloff	Lithic bedrock	20-40	---	Indurated	0	---	High	High	Low
47:									
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
48:									
Beca	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
49:									
Beca	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
50:									
Beca	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
51:									
Beca	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
51:									
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
52:									
Beca	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Slickear	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					
53:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
54:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
55:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
56:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
57:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
Selah	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
57:									
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
58:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
Selah	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
59:									
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
Selah	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
60:									
Beverly	Strongly contrasting textural stratification	14-25	---	Noncemented	0	---	Low	Moderate	Low
61:									
Brays	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
62:									
Brays	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Entiat	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
63:									
Brays	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Entiat	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
64:									
Broadax	---	---	---	---	0	---	High	High	Moderate
65:									
Broadax	---	---	---	---	0	---	High	High	Moderate
66:									
Broadax	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
67:									
Broadax	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
68:									
Broadax, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	High	Moderate
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Spofford	Duripan	40-60	---	Moderately cemented	0	---	High	High	Low
	Lithic bedrock	50-60	---	Indurated					
69:									
Broadax, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	High	Moderate
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Spofford	Duripan	40-60	---	Moderately cemented	0	---	High	High	Low
	Lithic bedrock	50-60	---	Indurated					
70:									
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
70:									
Titchenal	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
71:									
Burbank	Strongly contrasting textural stratification	20-25	---	Noncemented	0	---	Low	Moderate	Low
72:									
Burbank	Strongly contrasting textural stratification	20-25	---	Noncemented	0	---	Low	Moderate	Low
73:									
Burch	---	---	---	---	0	---	Moderate	Moderate	Low
74:									
Burch	---	---	---	---	0	---	Moderate	Moderate	Low
75:									
Burch	---	---	---	---	0	---	Moderate	Moderate	Low
76:									
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
77:									
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
Haploxerolls, wet	---	---	---	---	0	---	High	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
78:									
Cachebutte	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	High	Moderate	Moderate
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
Alecanyon	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
79:									
Cashmere	---	---	---	---	0	---	Moderate	Moderate	Low
80:									
Cashmere	---	---	---	---	0	---	Moderate	Moderate	Low
81:									
Cashmere	---	---	---	---	0	---	Moderate	Moderate	Low
82:									
Cashmere	Duripan	40-60	---	Weakly cemented	0	---	Moderate	Moderate	Low
83:									
Cashmere	Duripan	40-60	---	Weakly cemented	0	---	Moderate	Moderate	Low
84:									
Cashmere	Duripan	40-60	---	Weakly cemented	0	---	Moderate	Moderate	Low
85:									
Cashmere, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	Moderate	Moderate	Low
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					
86:									
Cashmere, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	Moderate	Moderate	Low
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
87:									
Cashmont	---	---	---	---	0	---	Moderate	Moderate	Low
88:									
Cashmont	---	---	---	---	0	---	Moderate	Moderate	Low
89:									
Cashmont	---	---	---	---	0	---	Moderate	Moderate	Low
90:									
Cashmont	---	---	---	---	0	---	Moderate	Moderate	Low
91:									
Cashmont	---	---	---	---	0	---	Moderate	Moderate	Low
92:									
Chelan, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	40-60	---	Noncemented					
93:									
Chelan, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	40-60	---	Noncemented					
94:									
Chelan, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	40-60	---	Noncemented					
95:									
Chelan, bedrock substratum	Paralithic bedrock	40-60	---	Moderately cemented	0	---	High	Moderate	Low
96:									
Chelan, gravelly substratum	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low
97:									
Chelan, gravelly substratum	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
98:									
Chelan, gravelly substratum	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low
99:									
Cheviot	---	---	---	---	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	Moderate	Low
Dougville	---	---	---	---	0	---	High	Moderate	Moderate
100:									
Cheviot	---	---	---	---	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	Moderate	Low
Grinrod	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
101:									
Cheviot	---	---	---	---	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	Moderate	Low
Rubble land	Lithic bedrock	40-60	---	Indurated	0	---	---	---	---
102:									
Conconully	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
103:									
Conconully	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
104:									
Conconully	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
104:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
105:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Swakane	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
106:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Swakane	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
107:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Swakane	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
108:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Wagberg	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
109:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Wagberg	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Low
110:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Wagberg	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Low
111:									
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
Wagberg	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Low
112:									
Corbaley	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
113:									
Cordy	---	---	---	---	0	---	High	Moderate	Low
Stemilt	---	---	---	---	0	---	Moderate	Moderate	Low
114:									
Dam	---	---	---	---	---	---	---	---	---
115:									
Deercut	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
116:									
Deercut	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
116:									
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Whiteye	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
117:									
Deercut	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Whiteye	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
118:									
Deercut	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Aarup	Duripan	10-20	---	Indurated	0	---	High	Moderate	Low
	Lithic bedrock	20-40	---	Indurated					
Whiteye	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
119:									
DelRio	Strongly contrasting textural stratification	44-60	---	Noncemented	0	---	High	Moderate	Moderate
120:									
DelRio	Strongly contrasting textural stratification	44-60	---	Noncemented	0	---	High	Moderate	Moderate
121:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
122:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
123:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
124:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
125:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
126:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
127:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
128:									
Dinkels	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
129:									
Dougville	---	---	---	---	0	---	High	Moderate	Moderate
130:									
Dougville	---	---	---	---	0	---	High	Moderate	Moderate
131:									
Dougville	---	---	---	---	0	---	High	Moderate	Moderate
132:									
Dougville	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
133:									
Dougville	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
134:									
Dougville	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
135:									
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
136:									
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Farmer, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
137:									
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Farmer, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
138:									
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Norax	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
138:									
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
139:									
Drysel	Duripan	20-40	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
140:									
Drysel	Duripan	20-40	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
Wanapum	Duripan	10-20	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	20-40	---	Indurated					
141:									
Durixerolls	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Ellisforde	---	---	---	---	0	---	High	High	Low
Elvedere	---	---	---	---	0	---	Moderate	High	Low
142:									
Durixerolls	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Ellisforde	---	---	---	---	0	---	High	High	Low
Elvedere	---	---	---	---	0	---	Moderate	High	Low
143:									
Durixerolls	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Ellisforde	---	---	---	---	0	---	High	High	Low
Elvedere	---	---	---	---	0	---	Moderate	High	Low
144:									
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
145:									
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
146:									
Durixerolls	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
147:									
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts	---	---	---	---	0	---	High	High	Low
148:									
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts	---	---	---	---	0	---	High	High	Low
149:									
Durixerolls	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Durixerolls, moist	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
150:									
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
151:									
Ebadlow	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
152:									
Ebadlow	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
Spofford	Duripan	40-60	---	Moderately cemented	0	---	High	High	Low
	Lithic bedrock	50-60	---	Indurated					
Badgermont	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
153:									
Ebadlow	Strongly contrasting textural stratification	25-35	---	Noncemented	0	---	Moderate	Moderate	Moderate
Spofford	Duripan	40-60	---	Moderately cemented	0	---	High	High	Low
	Lithic bedrock	50-60	---	Indurated					
Badgermont	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
154:									
Ellisforde	---	---	---	---	0	---	High	High	Low
155:									
Ellisforde	---	---	---	---	0	---	High	High	Low
156:									
Ellisforde	---	---	---	---	0	---	High	High	Low
157:									
Ellisforde	---	---	---	---	0	---	High	High	Low
158:									
Ellisforde	---	---	---	---	0	---	High	High	Low
DelRio	---	---	---	---	0	---	High	Moderate	Moderate
Nyssaton	---	---	---	---	0	---	Low	High	Low
159:									
Ellisforde	---	---	---	---	0	---	High	High	Low
Halaquepts	---	---	---	---	0	---	High	High	Low
160:									
Ellisforde	---	---	---	---	0	---	High	High	Low
Nespelem	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Nemire, moist	---	---	---	---	0	---	High	Moderate	Moderate
161:									
Ellisforde	---	---	---	---	0	---	High	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
161:									
Nyssaton	---	---	---	---	0	---	Low	High	Low
DelRio	---	---	---	---	0	---	High	Moderate	Moderate
162:									
Elvedere	---	---	---	---	0	---	Moderate	High	Low
163:									
Elvedere	---	---	---	---	0	---	Moderate	High	Low
164:									
Elvedere	---	---	---	---	0	---	Moderate	High	Low
Leahy	Natric	2-6	3-10	Noncemented	0	---	Moderate	High	Low
165:									
Entiat	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
Torriorthents	---	---	---	---	0	---	Low	Moderate	Low
166:									
Entiat	Paralithic bedrock	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Roosevelt	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
167:									
Ephrata	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	High	Low
168:									
Esquatzel	---	---	---	---	0	---	Moderate	Moderate	Low
169:									
Esquatzel	Duripan	40-60	3-10	Moderately cemented	0	---	High	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
170:									
Esquatzel	---	---	---	---	0	---	Moderate	Moderate	Low
171:									
Ewall	---	---	---	---	0	---	Low	Moderate	Low
172:									
Ewall	---	---	---	---	0	---	Low	Moderate	Low
Alecanyon	---	---	---	---	0	---	Low	Moderate	Low
173:									
Farmer	---	---	---	---	0	---	High	Moderate	Moderate
174:									
Farmer	---	---	---	---	0	---	High	Moderate	Moderate
175:									
Farmer	---	---	---	---	0	---	High	Moderate	Moderate
176:									
Farmer	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
177:									
Farmer	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
178:									
Farrell	---	---	---	---	0	---	High	High	Low
179:									
Finley	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	High	Low
180:									
Finley	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	High	Low
181:									
Finley	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Low	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
182:									
Ginnis	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
183:									
Ginnis	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
184:									
Ginnis	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Swakane	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
185:									
Grinrod	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	Moderate	Low
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
186:									
Grinrod	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	Moderate	Low
Rubble land	Lithic bedrock	40-60	---	Indurated	0	---	---	---	---
187:									
Grinrod	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
Rubble land	Lithic bedrock	40-60	---	Indurated	0	---	---	---	---
188:									
Halaquepts	---	---	---	---	0	---	High	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
189:									
Hanning	---	---	---	---	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
190:									
Hanning, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Badgermont	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
191:									
Hanning, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Badgermont	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
192:									
Haploxerolls	---	---	---	---	0	---	High	Moderate	Moderate
193:									
Haploxerolls, wet	---	---	---	---	0	---	High	High	Low
194:									
Haploxerolls	---	---	---	---	0	---	High	High	Low
Aquolls	---	---	---	---	0	---	High	High	Moderate
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
195:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
196:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
197:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
198:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
199:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
200:									
Heytou	Dense material	20-40	---	Noncemented	0	---	Moderate	High	Low
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
201:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
202:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
203:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
204:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
205:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
206:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
207:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
208:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
209:									
Jordy	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
210:									
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
211:									
Kiakus	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Shinn	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
212:									
Kiakus	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Shinn	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
213:									
Kiona	---	---	---	---	0	---	Moderate	High	Low
214:									
Kiona	---	---	---	---	0	---	Moderate	High	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
215:									
Leahy	Natric	2-6	3-10	Noncemented	0	---	Moderate	High	Low
Elvedere	---	---	---	---	0	---	Moderate	High	Low
Halaquepts, cemented substratum	Duripan	20-60	1-10	Weakly cemented	0	---	High	High	Low
216:									
Leidl	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Stemilt, bedrock substratum	Paralithic bedrock	40-60	---	Moderately cemented	0	---	High	Moderate	Low
217:									
Leidl	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Low
Stemilt, bedrock substratum	Paralithic bedrock	40-60	---	Moderately cemented	0	---	High	Moderate	Low
218:									
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
219:									
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
220:									
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
221:									
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
221:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
222:									
Logy	---	---	---	---	0	---	Moderate	Moderate	Low
223:									
Logy	---	---	---	---	0	---	Moderate	Moderate	Low
224:									
Logy	---	---	---	---	0	---	Moderate	Moderate	Low
225:									
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
226:									
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
227:									
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
Broadax	---	---	---	---	0	---	High	High	Moderate
228:									
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate
Shinn	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
229:									
Magallon	Strongly contrasting textural stratification	14-25	---	Noncemented	0	---	Moderate	Moderate	Low
230:									
Magallon	Strongly contrasting textural stratification	14-25	---	Noncemented	0	---	Moderate	Moderate	Low
231:									
Malaga	Strongly contrasting textural stratification	14-28	---	Noncemented	0	---	Low	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
232:									
Malaga	Strongly contrasting textural stratification	14-28	---	Noncemented	0	---	Low	Moderate	Low
233:									
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
234:									
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
235:									
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
236:									
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Mondovi	---	---	---	---	0	---	High	Moderate	Moderate
237:									
McCue	Duripan	40-60	---	Moderately cemented	0	---	Moderate	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
237:									
Broadax, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Mondovi	---	---	---	---	0	---	High	Moderate	Moderate
238:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
239:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
240:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
241:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
242:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
243:									
Morrow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Badge	---	---	---	---	0	---	Moderate	Moderate	Low
244:									
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
245:									
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
246:									
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
247:									
Nespelem	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Nemire	---	---	---	---	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
248:									
Nespelem	Duripan	20-40	4-10	Weakly cemented	0	---	High	High	Low
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
249:									
Norax	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
250:									
Norax	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
251:									
Norax	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
252:									
Norax	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dougville, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
253:									
Pateros	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
254:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
255:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
256:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
257:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
258:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
259:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
260:									
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
261:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
262:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
263:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
264:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
265:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
266:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
267:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
268:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
269:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
270:									
Pogue	Strongly contrasting textural stratification	20-35	---	Noncemented	0	---	Moderate	Moderate	Low
271:									
Prosser	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Low
Starbuck	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Moderate
272:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
273:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
274:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
275:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
DelRio	---	---	---	---	0	---	High	Moderate	Moderate
Sanbee	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	High	Moderate	Low
276:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
Ellisforde	---	---	---	---	0	---	High	High	Low
Cashmere	---	---	---	---	0	---	Moderate	Moderate	Low
277:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
277:									
Ellisforde	---	---	---	---	0	---	High	High	Low
Cashmere	---	---	---	---	0	---	Moderate	Moderate	Low
278:									
Quincy	---	---	---	---	0	---	Low	Moderate	Low
Sanbee	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	High	Moderate	Low
DelRio	---	---	---	---	0	---	High	Moderate	Moderate
279:									
Ralls	---	---	---	---	0	---	Moderate	High	Low
280:									
Ralls	---	---	---	---	0	---	Moderate	High	Low
281:									
Renshigh	---	---	---	---	0	---	High	Moderate	Moderate
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
282:									
Renshigh	---	---	---	---	0	---	High	Moderate	Moderate
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
283:									
Renslow	---	---	---	---	0	---	High	Moderate	Moderate
284:									
Renslow	---	---	---	---	0	---	High	Moderate	Moderate
285:									
Renslow	---	---	---	---	0	---	High	Moderate	Moderate
286:									
Renslow	---	---	---	---	0	---	High	Moderate	Moderate
287:									
Renslow	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
288:									
Renslow	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
289:									
Renslow	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
290:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Achelake	---	---	---	---	0	---	High	Moderate	Moderate
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					
291:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Achelake	---	---	---	---	0	---	High	Moderate	Moderate
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
292:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
293:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
294:									
Renslow, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	High	Moderate
Alstown	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
295:									
Ritzville	---	---	---	---	0	---	High	Moderate	Moderate
296:									
Ritzville	---	---	---	---	0	---	High	Moderate	Moderate
297:									
Ritzville	Duripan	45-60	---	Weakly cemented	0	---	High	High	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
298:									
Ritzville	Duripan	45-60	---	Weakly cemented	0	---	High	High	Moderate
299:									
Ritzville	Duripan	45-60	---	Weakly cemented	0	---	High	High	Moderate
300:									
Ritzville	Duripan	45-60	---	Weakly cemented	0	---	High	High	Moderate
301:									
Riverwash	---	---	---	---	---	---	---	---	---
302:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
Couleedam	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Roosevelt	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
303:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
Ginnis	Paralithic bedrock	20-40	---	Moderately cemented	0	---	Moderate	Moderate	Moderate
Swakane	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
304:									
Roloff	Lithic bedrock	20-40	---	Indurated	0	---	High	High	Low
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
305:									
Royal	---	---	---	---	0	---	High	High	Low
306:									
Rubble land	Lithic bedrock	40-60	---	Indurated	---	---	---	---	---
Rock outcrop	Lithic bedrock	0-0	---	Indurated	---	---	---	---	---
307:									
Rubble land	Lithic bedrock	40-60	---	Indurated	0	---	---	---	---
Stemilt	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
308:									
Sagehill	---	---	---	---	0	---	High	High	Low
309:									
Sanbee	Strongly contrasting textural stratification	14-20	---	Noncemented	0	---	High	Moderate	Low
310:									
Sanbee	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
311:									
Sanbee	Strongly contrasting textural stratification	14-30	---	Noncemented	0	---	High	Moderate	Low
312:									
Sanbee	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Moderate	Moderate	Low
Quincy	---	---	---	---	0	---	Low	Moderate	Low
313:									
Schawana	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Schawana, cobbly	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
314:									
Selah	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
315:									
Sevar	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
316:									
Shinn	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Lorena	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
317:									
Silico	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
318:									
Silico	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
Sevar	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
319:									
Silico	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
Sevar	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
320:									
Silico	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
Sevar	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
Dutchenry	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
321:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low
322:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low
323:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low
324:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
324:									
Ellisforde	---	---	---	---	0	---	High	High	Low
DelRio	Strongly contrasting textural stratification	44-60	---	Noncemented	0	---	High	Moderate	Moderate
325:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low
Zeemal	Duripan	10-20	2-10	Weakly cemented	0	---	High	High	Low
326:									
Simsfield	Duripan	20-40	2-10	Weakly cemented	0	---	High	High	Low
Zeemal	Duripan	10-20	2-10	Weakly cemented	0	---	High	High	Low
327:									
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
328:									
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
329:									
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
329:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
330:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
331:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
332:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
333:									
Siweeka, bedrock substrarum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
333:									
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
334:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
335:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
336:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
Brazlan, extremely bouldery	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
337:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
337:									
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
338:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
339:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Lithic bedrock	40-60	---	Indurated					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
340:									
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
341:									
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
341:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
342:									
Skaha	---	---	---	---	0	---	Low	Moderate	Low
343:									
Skaha	---	---	---	---	0	---	Low	Moderate	Low
344:									
Skaha	---	---	---	---	0	---	Low	Moderate	Low
345:									
Skaha	---	---	---	---	0	---	Low	Moderate	Low
Quincy	---	---	---	---	0	---	Low	Moderate	Low
346:									
Skaha	---	---	---	---	0	---	Low	Moderate	Low
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
347:									
Slickear	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					
348:									
Slickear	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					
349:									
Slusser	---	---	---	---	0	---	High	Moderate	Moderate
350:									
Slusser	---	---	---	---	0	---	High	Moderate	Moderate
351:									
Slusser	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
352:									
Slusser	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
353:									
Slusser	Duripan	40-60	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	50-60	---	Indurated					
354:									
Slusser, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
Alsash	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Nemire, moist	---	---	---	---	0	---	High	Moderate	Moderate
355:									
Slusser, cemented substratum	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
Alsash	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Moderate
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
356:									
Soaplake	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Roosevelt	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
357:									
Soaplake	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Roosevelt	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
358:									
Sprauer	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
359:									
Sprauer	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					
360:									
St. Andrews	Duripan	20-40	2-10	Moderately cemented	0	---	High	High	Low
	Dense material	21-50	---	Noncemented					
361:									
St. Andrews	Duripan	20-40	2-10	Moderately cemented	0	---	High	High	Low
	Dense material	21-50	---	Noncemented					
362:									
Starbuck	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Moderate
Bakeoven	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
363:									
Stemilt	---	---	---	---	0	---	Moderate	Moderate	Low
Cordy	---	---	---	---	0	---	High	Moderate	Low
364:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
365:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
366:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
367:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
368:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
369:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
370:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
371:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
372:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
372:									
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
373:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
DelRio	---	---	---	---	0	---	High	Moderate	Moderate
374:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
Nemire	---	---	---	---	0	---	High	Moderate	Moderate
375:									
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
Skaha	---	---	---	---	0	---	Low	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
376:									
Stratford	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
377:									
Stratford	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
378:									
Stratford	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Moderate	Moderate	Low
379:									
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
380:									
Supplee	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
381:									
Supplee	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	High	Moderate	Low
382:									
Tagear	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
383:									
Tagear	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
384:									
Tagear	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
385:									
Taunton	Duripan	20-40	---	Indurated	0	---	Moderate	High	Low
	Lithic bedrock	30-60	---	Indurated					
386:									
Taunton	Duripan	20-40	---	Indurated	0	---	Moderate	High	Low
	Lithic bedrock	30-60	---	Indurated					
387:									
Taunton	Duripan	20-40	---	Indurated	0	---	Moderate	High	Low
	Lithic bedrock	30-60	---	Indurated					
388:									
Taunton	Duripan	20-40	---	Indurated	0	---	Moderate	High	Low
	Lithic bedrock	30-60	---	Indurated					
Finley	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	High	Low
389:									
Taunton	Duripan	20-40	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
Scoon	Duripan	10-20	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
390:									
Taunton	Duripan	20-40	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
Scoon	Duripan	10-20	---	Indurated	0	---	Low	High	Low
	Lithic bedrock	30-60	---	Indurated					
391:									
Terlan	Duripan	10-20	---	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
392:									
Terlan	Duripan	10-20	---	Indurated	0	---	Moderate	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
Selah	Duripan	20-40	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
393:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
394:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
395:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
396:									
Timentwa, bedrock substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-65	---	Indurated					
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
397:									
Timentwa, bedrock substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-65	---	Indurated					
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
398:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
399:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
400:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Siweeka, bedrock substratum	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
	Lithic bedrock	40-60	---	Indurated					
401:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					
Brazlan	Duripan	20-36	---	Weakly cemented	0	---	Moderate	Moderate	Low
	Lithic bedrock	24-40	---	Indurated					
402:									
Timentwa	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
Siweeka	Duripan	20-40	---	Moderately cemented	0	---	High	Moderate	Moderate
	Dense material	24-44	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
402:									
Dezellem	---	---	---	---	0	---	Moderate	Moderate	Low
403:									
Timmerman	Strongly contrasting textural stratification	12-25	---	Noncemented	0	---	Low	Moderate	Low
404:									
Timmerman	Strongly contrasting textural stratification	12-25	---	Noncemented	0	---	Low	Moderate	Low
405:									
Timmerman	Strongly contrasting textural stratification	12-25	---	Noncemented	0	---	Low	Moderate	Low
406:									
Titchenal	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
407:									
Titchenal	Duripan	40-60	---	Moderately cemented	0	---	High	Moderate	Moderate
408:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
409:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
410:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
411:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
412:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
413:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
414:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
415:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
416:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Corbaley	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
417:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Corbaley	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
418:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Corbaley	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
419:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
420:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
421:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
422:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
423:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
424:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ralls, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate	Moderate
425:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ralls, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate	Moderate
426:									
Toler	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Kester	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
427:									
Torriorthents	Strongly contrasting textural stratification	10-14	---	Noncemented	0	---	Low	Moderate	Low
428:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
429:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
430:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
431:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
432:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
433:									
Touhey	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
434:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
435:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
435:									
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
436:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
437:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
438:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
439:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
440:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
440:									
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
441:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
Stubblefield, extremely bouldery	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
442:									
Touhey, bedrock substratum	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	22-45	---	Noncemented					
	Lithic bedrock	30-60	---	Indurated					
Stubblefield	Duripan	20-40	---	Strongly cemented	0	---	Moderate	Moderate	Low
	Dense material	22-60	---	Noncemented					
Tagear	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
443:									
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
444:									
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
445:									
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
446:									
Tubspring	Strongly contrasting textural stratification	14-37	---	Noncemented	0	---	High	Moderate	Moderate
DelRio	Strongly contrasting textural stratification	44-60	---	Noncemented	0	---	High	Moderate	Moderate
Strat	Strongly contrasting textural stratification	20-40	---	Noncemented	0	---	Moderate	Moderate	Low
447:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
448:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
449:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
450:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
451:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
452:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
453:									
Van Nostern	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Camaspatch	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
454:									
Vitrandic Argixerolls--	Lithic bedrock	20-80	---	Indurated	0	---	High	High	Low
Vitrandic Argixerolls, stony-----------	Lithic bedrock	20-80	---	Indurated	0	---	Moderate	High	Low
Argabak----------	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
455:									
Warden-----------	---	---	---	---	0	---	Low	High	Low
456:									
Watco------------	Strongly contrasting textural stratification	40-55	---	Noncemented	0	---	High	Moderate	Low
	Dense material	50-60	---	Noncemented					
457:									
Watco------------	Strongly contrasting textural stratification	40-60	---	Noncemented	0	---	High	Moderate	Low
Dezellem----------	---	---	---	---	0	---	Moderate	Moderate	Low
Timentwa----------	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	45-65	---	Noncemented					
458:									
Water------------	---	---	---	---	---	---	---	---	---
459:									
Waterflat---------	---	---	---	---	0	---	High	High	Moderate
460:									
Wellsdam----------	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
461:									
Wellsdam----------	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
462:									
Wellsdam----------	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
463:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
464:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
Couleedam	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
465:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
Couleedam	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Lithic bedrock	0-0	---	Indurated	0	---	None	---	---
466:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
467:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low
468:									
Wellsdam	Duripan	20-40	---	Weakly cemented	0	---	High	Moderate	Low
	Dense material	22-55	---	Noncemented					
Peshastin	Strongly contrasting textural stratification	15-25	---	Noncemented	0	---	Moderate	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
469:									
Whiteye	Duripan	10-20	---	Indurated	0	---	High	Moderate	Moderate
	Lithic bedrock	20-40	---	Indurated					
470:									
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					
471:									
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					
472:									
Willis	Duripan	20-40	---	Indurated	0	---	High	High	Moderate
	Lithic bedrock	30-60	---	Indurated					
473:									
Willock	Dense material	40-60	---	Noncemented	0	---	High	Moderate	Moderate
474:									
Willock	Dense material	40-60	---	Noncemented	0	---	High	Moderate	Moderate
475:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Willock, bedrock substratum	Paralithic bedrock	40-50	---	Moderately cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-60	---	Indurated					
476:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Willock, bedrock substratum	Paralithic bedrock	40-50	---	Moderately cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-60	---	Indurated					
477:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
477:									
Willock, bedrock substratum	Paralithic bedrock	40-50	---	Moderately cemented	0	---	High	Moderate	Low
	Lithic bedrock	50-60	---	Indurated					
478:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
479:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
480:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Conconully, bedrock substratum	Dense material	26-40	---	Noncemented	0	---	High	Moderate	Moderate
	Paralithic bedrock	45-60	---	Moderately cemented					
481:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Watco	Strongly contrasting textural stratification	40-55	---	Noncemented	0	---	High	Moderate	Low
	Dense material	50-60	---	---					

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
482:									
Willock, cemented substratum	Duripan	40-60	---	Weakly cemented	0	---	High	Moderate	Moderate
	Dense material	41-61	---	Noncemented					
Watco	Strongly contrasting textural stratification	40-55	---	Noncemented	0	---	High	Moderate	Low
	Dense material	50-60	---	Noncemented					
483:									
Winblow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
484:									
Winblow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
485:									
Winblow	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
486:									
Xerofluvents	---	---	---	---	0	---	Low	Moderate	Low
Beverly	Strongly contrasting textural stratification	14-25	---	Noncemented	0	---	Low	Moderate	Low
487:									
Zeemal	Duripan	10-20	2-10	Weakly cemented	0	---	High	High	Low
488:									
Zeemal	Duripan	10-20	2-10	Weakly cemented	0	---	High	High	Low
489:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
490:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
491:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
492:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
493:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Argabak	Lithic bedrock	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
494:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
495:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
496:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Benwy	Duripan	40-56	---	Indurated	0	---	Moderate	High	Moderate
	Lithic bedrock	46-60	---	Indurated					
497:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ralls, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate	Moderate
498:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	High	Moderate	Moderate
Horseflat	Lithic bedrock	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ralls, bedrock substratum	Lithic bedrock	40-60	---	Indurated	0	---	High	Moderate	Moderate
499:									
Zen	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	High	Low

Table 10.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
499:									
Lickskillet	Lithic bedrock	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Ralls	---	---	---	---	0	---	Moderate	High	Low
500:									
Pits	---	---	---	---	---	---	---	---	---

Table 11.--Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Aarup	Ashy, glassy, mesic, shallow Vitritorrandic Durixerolls
Achelake	Ashy, glassy, mesic Vitrandic Haploxerolls
Aeneas	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Alecanyon	Sandy-skeletal, mixed, mesic Vitrandic Haploxerolls
Alsash	Coarse-silty, mixed, superactive, mesic Vitritorrandic Argixerolls
Alstown	Coarse-silty, mixed, superactive, mesic Argiduridic Argixerolls
Aquolls	Aquolls
Argabak	Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls
Badge	Loamy-skeletal, mixed, superactive, mesic Typic Argixerolls
Badgermont	Loamy-skeletal, mixed, superactive, mesic Pachic Ultic Argixerolls
Bagdad	Coarse-silty, mixed, superactive, mesic Calcic Argixerolls
Bakeoven	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Beca	Coarse-loamy, mixed, superactive, mesic Vitrandic Argixerolls
*Benwy	Coarse-loamy, mixed, superactive, mesic Calciargidic Argixerolls
Beverly	Sandy-skeletal, mixed, mesic Xeric Torrifluvents
Brays	Ashy, glassy, mesic Vitritorrandic Haploxerolls
Brazlan	Loamy-skeletal, mixed, superactive, mesic Vitrandic Durixerolls
*Broadax	Coarse-silty, mixed, superactive, mesic Calcic Argixerolls
*Broadax	Coarse-silty, mixed, superactive, mesic Mollic Haploxeralfs
Burbank	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Burch	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Cachebutte	Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitrandic Haploxerolls
Camaspatch	Clayey-skeletal, smectitic, mesic Lithic Argixerolls
Cashmere	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Cashmont	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Chelan	Ashy, glassy, mesic Vitritorrandic Haploxerolls
Cheviot	Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Conconully	Coarse-loamy, mixed, superactive, mesic Vitrandic Haploxerolls
Corbaley	Ashy-skeletal, glassy, mesic Lithic Argixerolls
Cordy	Ashy over loamy, glassy over mixed, superactive, frigid Vitrandic Haploxerolls
Couleedam	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Deercut	Coarse-loamy, mixed, superactive, mesic Vitritorrandic Durixerolls
DelRio	Ashy, glassy, mesic Vitrixerandic Haplocambids
*DelRio	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Dezellem	Ashy over loamy-skeletal, glassy over mixed, superactive, mesic Vitrandic Haploxerolls
Dinkels	Ashy, glassy, mesic Vitrandic Haploxerolls
Dougville	Coarse-silty, mixed, superactive, mesic Vitrandic Argixerolls
Drysel	Fine-loamy, mixed, superactive, mesic Xeric Argidurids
Durixerolls	Durixerolls
Dutchenry	Ashy, glassy, mesic Vitrandic Durixerolls
Ebadlow	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Ellisforde	Coarse-silty, mixed, superactive, mesic Calcidic Haploxerolls
*Ellisforde	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Elvedere	Fine, mixed, superactive, mesic Xeric Paleargids
Entiat	Loamy-skeletal, mixed, superactive, mesic, shallow Aridic Haploxerolls
Ephrata	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Esquatzel	Coarse-silty, mixed, superactive, mesic Torrifluventic Haploxerolls
Ewall	Mixed, mesic Typic Xeropsamments
Farmer	Coarse-silty, mixed, superactive, mesic Vitrandic Argixerolls
Farrell	Coarse-loamy, mixed, superactive, mesic Calcidic Haploxerolls
Finley	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Ginnis	Coarse-loamy, mixed, superactive, mesic Ultic Haploxerolls
Grinrod	Loamy-skeletal, mixed, superactive, mesic Aridic Argixerolls
Halaquepts	Halaquepts
Hanning	Fine-silty, mixed, superactive, mesic Pachic Argixerolls
Haploxerolls	Haploxerolls
Heytou	Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
Horseflat	Loamy-skeletal, mixed, superactive, mesic Lithic Argixerolls
Jordy	Coarse-loamy, mixed, superactive, mesic Vitrandic Argixerolls
Kester	Ashy, glassy, mesic Vitritorrandic Haploxerolls
Kiakus	Fine-loamy, mixed, superactive, mesic Pachic Ultic Argixerolls
Kiona	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Leahy	Fine, mixed, superactive, mesic Xeric Natrargids
Leidl	Loamy-skeletal, mixed, superactive, mesic Vitrandic Argixerolls

Table 11.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Lickskillet	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Logy	Loamy-skeletal, mixed, superactive, mesic Torrifluventic Haploxerolls
Lorena	Fine-loamy, mixed, superactive, mesic Ultic Argixerolls
Magallon	Sandy, mixed, mesic Aridic Haploxerolls
Malaga	Sandy-skeletal, mixed, mesic Xeric Haplocambids
McCue	Fine, smectitic, mesic Mollic Palexeralfs
Mondovi	Coarse-silty, mixed, superactive, mesic Cumulic Haploxerolls
Morrow	Fine-silty, mixed, superactive, mesic Calcic Argixerolls
Nemire	Ashy, glassy, mesic Vitrandic Haploxerolls
*Nespelem	Coarse-silty, mixed, superactive, mesic Haplic Durixerolls
Norax	Fine-silty, mixed, superactive, mesic Mollic Haploxeralfs
*Nyssaton	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Pateros	Ashy-skeletal, glassy, mesic Vitrandic Xerochrepts
Peshastin	Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
Pogue	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Prosser	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Quincy	Mixed, mesic Xeric Torripsamments
Ralls	Fine-loamy, mixed, superactive, mesic Aridic Argixerolls
Renshigh	Fine-silty, mixed, superactive, mesic Mollic Haploxeralfs
Renslow	Coarse-silty, mixed, superactive, mesic Calciargidic Argixerolls
Ritzville	Coarse-silty, mixed, superactive, mesic Calcidic Haploxerolls
*Ritzville	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Roloff	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Roosevelt	Coarse-loamy, mixed, superactive, mesic Aridic Haploxerolls
Royal	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Sagehill	Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids
Sanbee	Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitrixerandic Haplocambids
*Sanbee	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids
*Sanbee	Sandy, mixed, mesic Vitrixerandic Haplocambids
Schawana	Loamy, mixed, superactive, nonacid, mesic Lithic Xeric Torriorthents
Scoon	Loamy, mixed, superactive, mesic, shallow Xeric Haplodurids
Selah	Fine-loamy, mixed, superactive, mesic Argiduridic Durixerolls
Sevar	Fine-loamy, mixed, superactive, mesic Vitrandic Durixerolls
Shinn	Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Argixerolls
Silico	Ashy, glassy, mesic, shallow Vitrandic Durixerolls
Simsfield	Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Durixerolls
Siweeka	Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Durixerolls
Skaha	Sandy-skeletal, mixed, mesic Xeric Torriorthents
*Skaha	Loamy-skeletal, mixed, superactive, mesic Aridic Haploxerolls
Slickear	Fine-silty, mixed, superactive, mesic Vitrandic Argixerolls
Slusser	Coarse-silty, mixed, superactive, mesic Vitritorrandic Argixerolls
Soaplake	Loamy, mixed, superactive, mesic Lithic Haploxerolls
Spofford	Fine-silty, mixed, superactive, mesic Typic Natrixerolls
Sprauer	Ashy, glassy, mesic Vitritorrandic Durixerolls
St. Andrews	Fine-loamy, mixed, superactive, mesic Vitritorrandic Durixerolls
Starbuck	Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids
Stemilt	Loamy-skeletal, mixed, superactive, frigid Vitrandic Argixerolls
Strat	Loamy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
*Strat	Loamy-skeletal, mixed, superactive, mesic Vitritorrandic Haploxerolls
Stratford	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
Stubblefield	Loamy-skeletal, mixed, superactive, mesic Cambidic Durixerolls
Supplee	Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitritorrandic Haploxerolls
Swakane	Loamy-skeletal, mixed, superactive, mesic Lithic Ultic Haploxerolls
Tagear	Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Haploxerolls
Taunton	Coarse-loamy, mixed, superactive, mesic Xeric Haplodurids
Terlan	Loamy, mixed, superactive, mesic, shallow Argiduridic Durixerolls
Timentwa	Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Haploxerolls
Timmerman	Sandy, mixed, mesic Xeric Haplocambids
Titchenal	Coarse-silty, mixed, superactive, mesic Pachic Ultic Argixerolls
Toler	Fine-loamy, mixed, superactive, mesic Vitritorrandic Argixerolls
Torriorthents	Torriorthents
Touhey	Ashy over loamy, glassy over mixed, superactive, mesic Vitritorrandic Durixerolls
Tubspring	Ashy over sandy or sandy-skeletal, glassy over mixed, mesic Vitritorrandic Haploxerolls

Table 11.--Taxonomic Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
*Tubspring	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Calcidic Haploxerolls
Van Nostern	Fine-silty, mixed, superactive, mesic Pachic Argixerolls
Vitrandic Argixerolls	Vitrandic Argixerolls
Wagberg	Loamy-skeletal, mixed, superactive, mesic Vitrandic Haploxerolls
Wanapum	Loamy-skeletal, mixed, superactive, mesic, shallow Xeric Argidurids
Warden	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Watco	Ashy, glassy, mesic Vitrandic Haploxerolls
Waterflat	Ashy, glassy, mesic Aquandic Endoaquolls
Wellsdam	Ashy, glassy, mesic Vitritorrandic Durixerolls
Whiteye	Loamy, mixed, superactive, mesic, shallow Vitritorrandic Durixerolls
Willis	Coarse-silty, mixed, superactive, mesic Haploduridic Durixerolls
Willock	Ashy over loamy, glassy over mixed, superactive, mesic Vitrandic Haploxerolls
Winblow	Ashy, glassy, mesic Vitritorrandic Haploxerolls
Xerofluvents	Xerofluvents
Zeemal	Ashy, glassy, mesic, shallow Xerochreptic Haplodurids
Zen	Fine-loamy, mixed, superactive, mesic Calciargidic Argixerolls

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120°15'00"

119°00'00"

48°00'00"

47°15'00"

T 31 N

T 30 N

T 29 N

T 28 N

T 27 N

T 26 N

T 25 N

T 24 N

T 23 N

T 22 N

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T 20 N

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R 21 E

R 22 E

R 23 E

R 24 E

R 25 E

R 26 E

R 27 E

R 28 E

R 29 E

R 30 E

R 31 E

Lake Pateros

Port Columbia

Gordon

Downing

Bridgeport

Dyer

Pearl

Nilles Corner

Osborne Corner

Rex

Barry

Del Rio

Four Corners

Steamboat Rock

Banks Lake

East Leahy

Sims Corner

Mansfield

Mud Spring

Waco

Beebe

Corral Creek

Mold

Matthiesen

Touhey

Grimes Lake

Long Canyon

Jameson

Jameson Lake

St. Andrews

Withrow

Lamoine

Supplee

Waterville

Orondo

Douglas

Farmer

Baird

Alstown

McCue

Palisades

East Wenatchee

Rock Island

Appledale

Volcan

Santa Fe

Columbia River

Okanogan County

Chelan County

Douglas County

Grant County

Kittitas County

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND

SOILS ON NONGLACIATED PLATEAUS

1 Alstown-Renslow-Benwy

2 Dougville-Farmer-Broadax

3 Argabak-Grinrod-Morrow

4 Toler-Aarup-Deercut

SOILS ON TILL PLAINS ON GLACIATED PLATEAUS

5 Touhey-Tagear-Stubblefield

6 Siweeka-Timentwa-Brazlan

7 Argabak-Timentwa-Heytou

SOILS ON TERRACES, KAMES, AND ESKERS ON GLACIATED PLATEAUS

8 Simsfield-Ellisforde

9 Strat-Tubspring-Cachebutte

SOILS ON GLACIAL OUTWASH TERRACES ALONG THE COLUMBIA RIVER

10 Wellsdam-Peshastin

11 Pogue-Quincy-Torriorthents

SOILS ON FORESTED MOUNTAINS

12 Stemilt-Cordy

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
WASHINGTON STATE UNIVERSITY, AGRICULTURAL RESEARCH CENTER

GENERAL SOIL MAP
DOUGLAS COUNTY, WASHINGTON

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:220000

120°15'00"

48°00'00"

47°15'00"

INDEX TO MAP SHEETS
DOUGLAS COUNTY, WASHINGTON

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:220000

SOIL LEGEND

SYMBOL	NAME
1	Aarup ashy fine sandy loam, 0 to 8 percent slopes
2	Aarup ashy fine sandy loam, 8 to 15 percent slopes
3	Aarup complex, 0 to 8 percent slopes
4	Achelake ashy fine sandy loam, 0 to 3 percent slopes
5	Aeneas fine sandy loam, 3 to 8 percent slopes
6	Alecanyon very cobbly ashy fine sandy loam, 3 to 30 percent slopes
7	Alecanyon very cobbly ashy loamy sand, 30 to 65 percent slopes, eroded
8	Alecanyon-Cachebutte complex, 0 to 8 percent slopes
9	Alecanyon-Cachebutte complex, 8 to 30 percent slopes
10	Alecanyon-Cachebutte-Nemire complex, 0 to 30 percent slopes
11	Alsash ashy fine sandy loam, 15 to 30 percent slopes
12	Alsash-Slusser complex, 0 to 8 percent slopes
13	Alsash-Slusser complex, 8 to 15 percent slopes
14	Alstown silt loam, 0 to 8 percent slopes
15	Alstown silt loam, 8 to 15 percent slopes
16	Alstown-Cheviot complex, 30 to 65 percent slopes
17	Alstown-Renslow complex, 0 to 8 percent slopes
18	Alstown-Renslow complex, 8 to 15 percent slopes
19	Aquolls, nearly level
20	Aquolls-Halaquepts complex, nearly level
21	Argabak very cobbly loam, 0 to 20 percent slopes
22	Argabak-Badge complex, 8 to 30 percent slopes
23	Argabak-Camaspatch-Badge complex, 30 to 65 percent slopes
24	Argabak-Haploxerolls-Siweeka complex, 0 to 30 percent slopes
25	Argabak-Horseflat complex, 0 to 30 percent slopes
26	Argabak-Horseflat-Toler complex, 0 to 20 percent slopes
27	Argabak-Horseflat-Zen complex, 0 to 20 percent slopes
28	Argabak-Morrow complex, 0 to 30 percent slopes
29	Argabak-Nemire-Siweeka complex, 0 to 30 percent slopes
30	Argabak-Rock outcrop complex, 0 to 35 percent slopes
31	Argabak-Tagear-Rock outcrop complex, 0 to 15 percent slopes
32	Argabak-Timentwa-Rock outcrop complex, 0 to 15 percent slopes
33	Argabak-Timentwa-Rock outcrop complex, warm, 0 to 15 percent slopes
34	Argabak-Winblow-Rock outcrop complex, 0 to 20 percent slopes
35	Badge very cobbly silt loam, 15 to 30 percent slopes
36	Badge very cobbly silt loam, 30 to 65 percent slopes
37	Badge-Bakeoven complex, 25 to 55 percent slopes
38	Badge-Dougville complex, 8 to 30 percent slopes
39	Badge-Stemilt complex, 3 to 30 percent slopes
40	Badge-Stemilt complex, 30 to 65 percent slopes
41	Bagdad silt loam, 0 to 8 percent slopes
42	Bagdad silt loam, cemented substratum, 0 to 8 percent slopes
43	Bagdad silt loam, cemented substratum, 8 to 15 percent slopes
44	Bakeoven very cobbly loam, 0 to 35 percent slopes
45	Bakeoven-Lickskillet-Zen complex, 5 to 25 percent slopes
46	Bakeoven-Roloff complex, 0 to 25 percent slopes
47	Bakeoven-Touhey complex, 0 to 25 percent slopes
48	Beca ashy fine sandy loam, 3 to 8 percent slopes
49	Beca ashy fine sandy loam, 8 to 15 percent slopes
50	Beca ashy fine sandy loam, 15 to 30 percent slopes
51	Beca-Camaspatch complex, 15 to 30 percent slopes
52	Beca-Dougville-Slickear complex, 15 to 40 percent slopes
53	Benwy silt loam, 3 to 8 percent slopes
54	Benwy silt loam, 8 to 15 percent slopes
55	Benwy-Alstown complex, 0 to 8 percent slopes
56	Benwy-Alstown complex, 8 to 15 percent slopes
57	Benwy-Selah-Alstown complex, 0 to 8 percent slopes
58	Benwy-Selah-Alstown complex, 8 to 15 percent slopes
59	Benwy-Selah-Alstown complex, 15 to 30 percent slopes
60	Beverly cobbly fine sandy loam, 0 to 8 percent slopes
61	Brays ashy fine sandy loam, 3 to 15 percent slopes
62	Brays-Entiat complex, 15 to 30 percent slopes
63	Brays-Entiat-Rock outcrop complex, 30 to 65 percent slopes
64	Broadax silt loam, 0 to 8 percent slopes
65	Broadax silt loam, 8 to 15 percent slopes
66	Broadax silt loam, cemented substratum, 3 to 8 percent slopes
67	Broadax silt loam, cemented substratum, 8 to 15 percent slopes
68	Broadax-Morrow-Spofford complex, 3 to 8 percent slopes
69	Broadax-Morrow-Spofford complex, 8 to 15 percent slopes
70	Broadax-Titchenal complex, 3 to 15 percent slopes
71	Burbank loamy fine sand, 0 to 8 percent slopes
72	Burbank loamy fine sand, 8 to 25 percent slopes
73	Burch fine sandy loam, 8 to 15 percent slopes
74	Burch loam, 0 to 3 percent slopes
75	Burch loam, 3 to 8 percent slopes
76	Cachebutte ashy sandy loam, 0 to 8 percent slopes
77	Cachebutte-Alecanyon-Haploxerolls complex, 0 to 30 percent slopes
78	Cachebutte-Nemire-Alecanyon complex, 0 to 8 percent slopes
79	Cashmere fine sandy loam, 0 to 3 percent slopes
80	Cashmere fine sandy loam, 3 to 8 percent slopes
81	Cashmere fine sandy loam, 8 to 15 percent slopes
82	Cashmere fine sandy loam, cemented substratum, 0 to 3 percent slopes
83	Cashmere fine sandy loam, cemented substratum, 3 to 8 percent slopes
84	Cashmere fine sandy loam, cemented substratum, 8 to 15 percent slopes
85	Cashmere-Willis complex, 15 to 30 percent slopes
86	Cashmere-Willis complex, 30 to 45 percent slopes
87	Cashmont gravelly sandy loam, 3 to 8 percent slopes
88	Cashmont gravelly sandy loam, 8 to 15 percent slopes
89	Cashmont sandy loam, 0 to 3 percent slopes
90	Cashmont sandy loam, 3 to 8 percent slopes
91	Cashmont sandy loam, 8 to 15 percent slopes
92	Chelan ashy fine sandy loam, 0 to 8 percent slopes
93	Chelan ashy fine sandy loam, 8 to 15 percent slopes
94	Chelan ashy fine sandy loam, 15 to 30 percent slopes
95	Chelan ashy fine sandy loam, bedrock substratum, 15 to 30 percent slopes
96	Chelan ashy fine sandy loam, gravelly substratum, 0 to 8 percent slopes
97	Chelan ashy fine sandy loam, gravelly substratum, 8 to 15 percent slopes
98	Chelan ashy fine sandy loam, gravelly substratum, 15 to 30 percent slopes
99	Cheviot-Ralls-Dougville complex, 8 to 15 percent slopes
100	Cheviot-Ralls-Grinrod complex, 15 to 30 percent slopes
101	Cheviot-Ralls-Rubble land complex, 30 to 65 percent slopes
102	Conconully complex, 0 to 8 percent slopes
103	Conconully complex, 8 to 15 percent slopes
104	Conconully complex, 15 to 30 percent slopes
105	Conconully-Swakane-Rock outcrop complex, 0 to 15 percent slopes
106	Conconully-Swakane-Rock outcrop complex, 15 to 30 percent slopes
107	Conconully-Swakane-Rock outcrop complex, 30 to 60 percent slopes
108	Conconully-Wagberg complex, 3 to 8 percent slopes
109	Conconully-Wagberg complex, 8 to 15 percent slopes
110	Conconully-Wagberg complex, 15 to 30 percent slopes
111	Conconully-Wagberg complex, 30 to 65 percent slopes
112	Corbaley-Kester complex, 0 to 5 percent slopes
113	Cordy-Stemilt complex, 3 to 30 percent slopes
114	Dam
115	Deercut ashy fine sandy loam, 0 to 8 percent slopes
116	Deercut-Aarup-Whiteye complex, 0 to 3 percent slopes
117	Deercut-Aarup-Whiteye complex, 3 to 8 percent slopes
118	Deercut-Aarup-Whiteye complex, 8 to 15 percent slopes
119	DelRio ashy fine sandy loam, 0 to 8 percent slopes
120	DelRio ashy fine sandy loam, 8 to 15 percent slopes
121	Dezellem-Brazlan complex, 3 to 15 percent slopes
122	Dezellem-Brazlan complex, 15 to 30 percent slopes
123	Dezellem-Brazlan complex, 30 to 45 percent slopes
124	Dezellem-Brazlan-Rock outcrop complex, 20 to 50 percent slopes
125	Dezellem-Stubblefield complex, 20 to 45 percent slopes
126	Dezellem-Timentwa-Rock outcrop complex, 20 to 70 percent slopes
127	Dezellem-Timentwa-Rock outcrop complex, warm, 20 to 70 percent slopes
128	Dinkels-Rock outcrop complex, 35 to 70 percent slopes
129	Dougville ashy fine sandy loam, 0 to 8 percent slopes
130	Dougville ashy fine sandy loam, 8 to 15 percent slopes
131	Dougville ashy fine sandy loam, 15 to 30 percent slopes
132	Dougville ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes
133	Dougville ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes
134	Dougville ashy fine sandy loam, cemented substratum, 15 to 30 percent slopes
135	Dougville-Badge complex, 30 to 65 percent slopes
136	Dougville-Farmer complex, 8 to 15 percent slopes
137	Dougville-Farmer-Dutchenry complex, 15 to 30 percent slopes
138	Dougville-Norax-Nemire complex, 0 to 25 percent slopes
139	Drysel silt loam, 5 to 15 percent slopes
140	Drysel-Wanapum complex, 5 to 15 percent slopes
141	Durixerolls-Ellisforde-Elvedere complex, 8 to 15 percent slopes
142	Durixerolls-Ellisforde-Elvedere complex, 15 to 30 percent slopes
143	Durixerolls-Ellisforde-Elvedere complex, 30 to 45 percent slopes
144	Durixerolls-Halaquepts complex, nearly level
145	Durixerolls-Halaquepts complex, undulating
146	Durixerolls-Halaquepts complex, nearly level to rolling
147	Durixerolls-Halaquepts complex, cool, nearly level
148	Durixerolls-Halaquepts complex, cool, undulating
149	Durixerolls-Halaquepts complex, cool, nearly level to rolling
150	Dutchenry ashy fine sandy loam, 0 to 8 percent slopes
151	Ebadlow silt loam, 3 to 8 percent slopes
152	Ebadlow-Spofford-Badgermont complex, 3 to 8 percent slopes
153	Ebadlow-Spofford-Badgermont complex, 8 to 15 percent slopes
154	Ellisforde fine sandy loam, 3 to 8 percent slopes
155	Ellisforde fine sandy loam, 30 to 60 percent slopes
156	Ellisforde very fine sandy loam, 0 to 8 percent slopes
157	Ellisforde loam, 0 to 15 percent slopes
158	Ellisforde-DelRio-Nyssaton complex, 30 to 65 percent slopes
159	Ellisforde-Halaquepts complex, 0 to 3 percent slopes
160	Ellisforde-Nespelem-Nemire complex, 0 to 8 percent slopes
161	Ellisforde-Nyssaton-DelRio complex, 15 to 30 percent slopes
162	Elvedere silt loam, 0 to 3 percent slopes
163	Elvedere silt loam, 3 to 8 percent slopes
164	Elvedere-Leahy complex, 0 to 8 percent slopes
165	Entiat-Rock outcrop-Torriorthents complex, 30 to 70 percent slopes
166	Entiat-Roosevelt-Rock outcrop complex, 8 to 30 percent slopes
167	Ephrata fine sandy loam, 2 to 5 percent slopes
168	Esquatzel silt loam, 0 to 3 percent slopes
169	Esquatzel silt loam, cemented substratum, 0 to 3 percent slopes
170	Esquatzel silt loam, channeled, 0 to 3 percent slopes
171	Ewall loamy fine sand, 3 to 15 percent slopes
172	Ewall-Alecanyon complex, 3 to 15 percent slopes
173	Farmer ashy fine sandy loam, 0 to 8 percent slopes
174	Farmer ashy fine sandy loam, 8 to 15 percent slopes
175	Farmer ashy fine sandy loam, 15 to 30 percent slopes
176	Farmer ashy fine sandy loam, cemented substratum, 3 to 8 percent slopes
177	Farmer ashy fine sandy loam, cemented substratum, 8 to 15 percent slopes
178	Farrell very fine sandy loam, 0 to 5 percent slopes
179	Finley gravelly fine sandy loam, 0 to 15 percent slopes
180	Finley very cobbly fine sandy loam, 0 to 15 percent slopes
181	Finley stony loam, 3 to 8 percent slopes
182	Ginnis fine sandy loam, 3 to 15 percent slopes
183	Ginnis fine sandy loam, 15 to 30 percent slopes
184	Ginnis-Swakane-Rock outcrop complex, 30 to 70 percent slopes
185	Grinrod-Ralls-Argabak complex, 8 to 50 percent slopes
186	Grinrod-Ralls-Rubble land complex, 30 to 70 percent slopes
187	Grinrod-Rock outcrop-Rubble land complex, 30 to 70 percent slopes
188	Halaquepts complex, nearly level
189	Hanning silt loam, 3 to 8 percent slopes
190	Hanning-McCue-Badgermont complex, 3 to 8 percent slopes
191	Hanning-McCue-Badgermont complex, 8 to 15 percent slopes
192	Haploxerolls, nearly level to gently sloping
193	Haploxerolls, moderately well drained, nearly level to gently sloping
194	Haploxerolls-Aquolls-Halaquepts complex, nearly level to gently sloping
195	Heytou-Stubblefield complex, 3 to 15 percent slopes
196	Heytou-Stubblefield complex, 15 to 30 percent slopes
197	Heytou-Stubblefield complex, 30 to 45 percent slopes
198	Heytou-Stubblefield-Rock outcrop complex, 20 to 50 percent slopes
199	Heytou-Stubblefield-Siweeka complex, 0 to 20 percent slopes
200	Heytou-Timentwa-Strat complex, 20 to 70 percent slopes
201	Jordy ashy fine sandy loam, 0 to 8 percent slopes
202	Jordy ashy fine sandy loam, 8 to 15 percent slopes
203	Jordy ashy fine sandy loam, 15 to 30 percent slopes
204	Jordy-Argabak complex, 3 to 8 percent slopes
205	Jordy-Argabak complex, 8 to 15 percent slopes
206	Jordy-Argabak complex, 15 to 30 percent slopes
207	Jordy-Camaspatch complex, 3 to 8 percent slopes
208	Jordy-Camaspatch complex, 8 to 15 percent slopes
209	Jordy-Camaspatch complex, 15 to 30 percent slopes
210	Kester ashy fine sandy loam, 0 to 5 percent slopes
211	Kiakus-Shinn-Lorena complex, 3 to 30 percent slopes
212	Kiakus-Shinn-Lorena complex, 30 to 60 percent slopes
213	Kiona cobbly very fine sandy loam, 25 to 65 percent slopes
214	Kiona-Rock outcrop complex, 25 to 65 percent slopes
215	Leahy-Elvedere-Halaquepts complex, 0 to 3 percent slopes
216	Leidl-Stemilt complex, 3 to 15 percent slopes
217	Leidl-Stemilt complex, 15 to 30 percent slopes
218	Lickskillet very cobbly loam, 0 to 15 percent slopes
219	Lickskillet very cobbly loam, 15 to 35 percent slopes
220	Lickskillet very cobbly loam, 35 to 65 percent slopes
221	Lickskillet-Brazlan-Dezellem complex, 0 to 20 percent slopes
222	Logy cobbly sandy loam, 3 to 15 percent slopes
223	Logy cobbly sandy loam, 15 to 30 percent slopes
224	Logy very stony sandy loam, 3 to 15 percent slopes
225	Lorena silt loam, 3 to 15 percent slopes
226	Lorena silt loam, 15 to 30 percent slopes
227	Lorena-Broadax complex, 3 to 15 percent slopes
228	Lorena-Shinn complex, 3 to 30 percent slopes
229	Magallon fine sandy loam, 3 to 8 percent slopes
230	Magallon fine sandy loam, 8 to 15 percent slopes
231	Malaga gravelly fine sandy loam, 0 to 8 percent slopes
232	Malaga cobbly fine sandy loam, 0 to 8 percent slopes
233	McCue-Broadax complex, 3 to 8 percent slopes
234	McCue-Broadax complex, 8 to 15 percent slopes
235	McCue-Broadax complex, 15 to 30 percent slopes
236	McCue-Broadax-Mondovi complex, 0 to 8 percent slopes
237	McCue-Broadax-Mondovi complex, 3 to 15 percent slopes
238	Morrow silt loam, 0 to 3 percent slopes
239	Morrow silt loam, 3 to 8 percent slopes
240	Morrow silt loam, 8 to 15 percent slopes
241	Morrow-Argabak complex, 3 to 8 percent slopes
242	Morrow-Argabak complex, 8 to 15 percent slopes
243	Morrow-Argabak-Badge complex, 15 to 30 percent slopes
244	Nemire ashy fine sandy loam, 0 to 3 percent slopes
245	Nemire ashy fine sandy loam, 3 to 8 percent slopes
246	Nemire ashy fine sandy loam, sandy substratum, 0 to 3 percent slopes
247	Nespelem-Nemire complex, 0 to 8 percent slopes
248	Nespelem-Nemire complex, 8 to 15 percent slopes
249	Norax silt loam, 8 to 15 percent slopes
250	Norax-Dutchenry-Dougville complex, 3 to 8 percent slopes
251	Norax-Dutchenry-Dougville complex, 8 to 15 percent slopes
252	Norax-Dutchenry-Dougville complex, 15 to 30 percent slopes
253	Pateros-Rock outcrop complex, 25 to 70 percent slopes
254	Peshastin fine sandy loam, 3 to 8 percent slopes
255	Peshastin fine sandy loam, 8 to 15 percent slopes
256	Peshastin fine sandy loam, 15 to 30 percent slopes
257	Peshastin fine sandy loam, compacted substratum, 3 to 8 percent slopes
258	Peshastin fine sandy loam, compacted substratum, 8 to 15 percent slopes
259	Peshastin stony fine sandy loam, 8 to 15 percent slopes
260	Peshastin stony fine sandy loam, 30 to 60 percent slopes
261	Pogue fine sandy loam, 0 to 3 percent slopes
262	Pogue fine sandy loam, 3 to 8 percent slopes
263	Pogue fine sandy loam, 8 to 15 percent slopes
264	Pogue gravelly fine sandy loam, 8 to 15 percent slopes
265	Pogue gravelly fine sandy loam, 15 to 25 percent slopes
266	Pogue cobbly fine sandy loam, 0 to 15 percent slopes
267	Pogue cobbly fine sandy loam, 30 to 65 percent slopes
268	Pogue extremely stony fine sandy loam, 3 to 25 percent slopes
269	Pogue bouldery fine sandy loam, 3 to 8 percent slopes
270	Pogue loam, 8 to 15 percent slopes
271	Prosser-Starbuck complex, 15 to 45 percent slopes
272	Quincy fine sand, 15 to 30 percent slopes
273	Quincy fine sand, high precipitation, 3 to 15 percent slopes
274	Quincy loamy fine sand, 0 to 15 percent slopes
275	Quincy-DelRio-Sanbee complex, 20 to 60 percent slopes
276	Quincy-Ellisforde-Cashmere complex, 3 to 15 percent slopes
277	Quincy-Ellisforde-Cashmere complex, 30 to 60 percent slopes
278	Quincy-Sanbee-DelRio complex, 0 to 20 percent slopes
279	Ralls silt loam, 3 to 25 percent slopes
280	Ralls silt loam, 25 to 55 percent slopes
281	Renshigh-Alstown-Renslow complex, 3 to 15 percent slopes
282	Renshigh-Alstown-Renslow complex, 15 to 30 percent slopes
283	Renslow silt loam, 0 to 8 percent slopes
284	Renslow silt loam, 8 to 15 percent slopes
285	Renslow silt loam, 15 to 30 percent north slopes
286	Renslow silt loam, 15 to 30 percent south slopes
287	Renslow silt loam, cemented substratum, 0 to 8 percent slopes
288	Renslow silt loam, cemented substratum, 8 to 15 percent slopes
289	Renslow silt loam, cemented substratum, 15 to 30 percent slopes
290	Renslow-Achelake-Willis complex, 8 to 15 percent slopes
291	Renslow-Achelake-Willis complex, 15 to 30 percent slopes
292	Renslow-Alstown-Kester complex, 3 to 8 percent slopes
293	Renslow-Alstown-Kester complex, 8 to 15 percent slopes
294	Renslow-Alstown-Kester complex, 15 to 30 percent slopes
295	Ritzville silt loam, 3 to 8 percent slopes
296	Ritzville silt loam, 15 to 30 percent north slopes
297	Ritzville silt loam, cemented substratum, 0 to 8 percent slopes
298	Ritzville silt loam, cemented substratum, 8 to 15 percent slopes
299	Ritzville silt loam, cemented substratum, 15 to 30 percent slopes
300	Ritzville silt loam, cemented substratum, 30 to 65 percent slopes
301	Riverwash
302	Rock outcrop-Couleedam-Roosevelt complex, 30 to 70 percent slopes
303	Rock outcrop-Ginnis-Swakane complex, 30 to 70 percent slopes
304	Roloff-Bakeoven complex, 5 to 25 percent slopes
305	Royal loamy fine sand, 0 to 10 percent slopes
306	Rubble land-Rock outcrop complex, very steep
307	Rubble land-Stemilt-Rock outcrop complex, 30 to 65 percent slopes
308	Sagehill very fine sandy loam, 10 to 15 percent slopes
309	Sanbee loamy fine sand, 0 to 15 percent slopes
310	Sanbee ashy sandy loam, 0 to 8 percent slopes
311	Sanbee ashy fine sandy loam, 0 to 8 percent slopes
312	Sanbee-Quincy complex, 0 to 3 percent slopes
313	Schawana complex, 0 to 15 percent slopes
314	Selah silt loam, 0 to 8 percent slopes
315	Sevar ashy fine sandy loam, 3 to 8 percent slopes
316	Shinn-Lorena complex, 30 to 65 percent slopes
317	Silico ashy fine sandy loam, 0 to 8 percent slopes
318	Silico-Sevar-Dutchenry complex, 0 to 8 percent slopes
319	Silico-Sevar-Dutchenry complex, 8 to 15 percent slopes
320	Silico-Sevar-Dutchenry complex, 15 to 30 percent slopes
321	Simsfield ashy fine sandy loam, 0 to 3 percent slopes
322	Simsfield ashy fine sandy loam, 3 to 8 percent slopes
323	Simsfield ashy fine sandy loam, 8 to 15 percent slopes
324	Simsfield-Ellisforde-DelRio complex, 0 to 15 percent slopes
325	Simsfield-Zeemal complex, 0 to 8 percent slopes
326	Simsfield-Zeemal complex, 8 to 30 percent slopes
327	Siweeka complex, 0 to 8 percent slopes
328	Siweeka complex, 8 to 15 percent slopes
329	Siweeka complex, 15 to 30 percent slopes
330	Siweeka-Argabak complex, 0 to 15 percent slopes
331	Siweeka-Argabak-Rock outcrop complex, 15 to 30 percent slopes
332	Siweeka-Argabak-Rock outcrop complex, 30 to 65 percent slopes
333	Siweeka-Brazlan complex, 0 to 8 percent slopes
334	Siweeka-Brazlan complex, 8 to 15 percent slopes
335	Siweeka-Brazlan complex, 15 to 30 percent slopes
336	Siweeka-Brazlan-Brazlan extremely bouldery complex, 3 to 15 percent slopes
337	Siweeka-Brazlan-Argabak complex, 0 to 20 percent slopes
338	Siweeka-Lickskillet-Argabak complex, 0 to 20 percent slopes
339	Siweeka-Stubblefield-Timentwa complex, 0 to 15 percent slopes
340	Siweeka-Timentwa-Dezellem complex, 0 to 15 percent slopes
341	Siweeka-Timentwa-Stubblefield complex, 15 to 40 percent slopes
342	Skaha cobbly loamy sand, 0 to 8 percent slopes
343	Skaha very cobbly loamy sand, 0 to 15 percent slopes
344	Skaha very cobbly loamy sand, 30 to 65 percent slopes
345	Skaha-Quincy complex, 3 to 15 percent slopes
346	Skaha-Tubspring complex, 0 to 8 percent slopes
347	Slickear ashy fine sandy loam, 0 to 8 percent slopes
348	Slickear ashy fine sandy loam, 8 to 15 percent slopes
349	Slusser ashy fine sandy loam, 0 to 8 percent slopes
350	Slusser ashy fine sandy loam, 8 to 15 percent slopes
351	Slusser ashy fine sandy loam, cemented substratum, 0 to 8 percent slopes
352	Slusser ashy fine sandy loam, cemented substratum, 8 to 30 percent slopes
353	Slusser ashy fine sandy loam, indurated substratum, 3 to 8 percent slopes
354	Slusser-Alsash-Nemire complex, 3 to 8 percent slopes
355	Slusser-Alsash-Nemire complex, 8 to 15 percent slopes
356	Soaplake-Roosevelt-Rock outcrop complex, 0 to 30 percent slopes
357	Soaplake-Roosevelt-Rock outcrop complex, 30 to 65 percent slopes
358	Sprauer ashy fine sandy loam, 0 to 8 percent slopes
359	Sprauer ashy fine sandy loam, 8 to 30 percent slopes
360	St. Andrews ashy loam, 0 to 3 percent slopes
361	St. Andrews ashy loam, 3 to 8 percent slopes
362	Starbuck-Bakeoven-Rock outcrop complex, 0 to 45 percent slopes
363	Stemilt-Cordy complex, 30 to 60 percent slopes
364	Strat very cobbly sandy loam, 0 to 10 percent slopes
365	Strat very cobbly sandy loam, 10 to 30 percent slopes
366	Strat very cobbly sandy loam, 30 to 65 percent slopes
367	Strat cobbly loam, 0 to 15 percent slopes
368	Strat stony loam, 0 to 25 percent slopes
369	Strat silt loam, 0 to 3 percent slopes
370	Strat very stony silt loam, 0 to 8 percent slopes
371	Strat-Tubspring complex, 0 to 8 percent slopes
372	Strat-Tubspring complex, 8 to 30 percent slopes
373	Strat-Tubspring-DelRio complex, 0 to 30 percent slopes
374	Strat-Tubspring-Nemire complex, 0 to 30 percent slopes
375	Strat-Tubspring-Skaha complex, 0 to 15 percent slopes
376	Stratford silt loam, 0 to 3 percent slopes
377	Stratford silt loam, 3 to 8 percent slopes
378	Stratford silt loam, 8 to 15 percent slopes
379	Stubblefield stony loam, 45 to 70 percent slopes
380	Supplee ashy very fine sandy loam, 3 to 8 percent slopes
381	Supplee ashy very fine sandy loam, 8 to 15 percent slopes
382	Tagear ashy fine sandy loam, 0 to 8 percent slopes
383	Tagear ashy fine sandy loam, 8 to 15 percent slopes
384	Tagear ashy fine sandy loam, 15 to 30 percent slopes
385	Taunton fine sandy loam, 10 to 15 percent slopes
386	Taunton silt loam, 5 to 10 percent slopes
387	Taunton silt loam, 15 to 25 percent slopes
388	Taunton-Finley complex, 0 to 10 percent slopes
389	Taunton-Scoon complex, 3 to 8 percent slopes
390	Taunton-Scoon complex, 8 to 15 percent slopes
391	Terlan silt loam, 0 to 8 percent slopes
392	Terlan-Selah complex, 0 to 8 percent slopes
393	Timentwa ashy fine sandy loam, 0 to 8 percent slopes
394	Timentwa ashy fine sandy loam, 8 to 15 percent slopes
395	Timentwa ashy fine sandy loam, 15 to 30 percent slopes
396	Timentwa-Lickskillet-Argabak complex, 0 to 15 percent slopes
397	Timentwa-Lickskillet-Argabak complex, warm, 0 to 15 percent slopes
398	Timentwa-Siweeka complex, 3 to 8 percent slopes
399	Timentwa-Siweeka complex, 8 to 15 percent slopes
400	Timentwa-Siweeka complex, 15 to 30 percent slopes
401	Timentwa-Siweeka-Brazlan complex, 0 to 15 percent slopes
402	Timentwa-Siweeka-Dezellem complex, 30 to 60 percent slopes
403	Timmerman coarse sandy loam, 0 to 3 percent slopes
404	Timmerman coarse sandy loam, 3 to 8 percent slopes
405	Timmerman coarse sandy loam, 8 to 15 percent slopes
406	Titchenal silt loam, 3 to 8 percent slopes
407	Titchenal silt loam, 8 to 15 percent slopes
408	Toler ashy fine sandy loam, 0 to 8 percent slopes
409	Toler ashy fine sandy loam, 8 to 15 percent slopes
410	Toler ashy fine sandy loam, 15 to 30 percent slopes
411	Toler ashy silt loam, 0 to 3 percent slopes
412	Toler ashy silt loam, 3 to 8 percent slopes
413	Toler ashy silt loam, 8 to 15 percent slopes
414	Toler ashy silt loam, 15 to 30 percent slopes
415	Toler-Argabak-Horseflat complex, 0 to 20 percent slopes
416	Toler-Corbaley complex, 3 to 8 percent slopes
417	Toler-Corbaley complex, 8 to 15 percent slopes
418	Toler-Corbaley complex, 15 to 30 percent slopes
419	Toler-Horseflat complex, 0 to 3 percent slopes
420	Toler-Horseflat complex, 3 to 8 percent slopes
421	Toler-Horseflat complex, 8 to 15 percent slopes
422	Toler-Horseflat complex, 15 to 30 percent slopes
423	Toler-Horseflat-Benwy complex, 3 to 8 percent slopes
424	Toler-Horseflat-Ralls complex, 8 to 15 percent slopes
425	Toler-Horseflat-Ralls complex, 15 to 30 percent slopes
426	Toler-Kester complex, 3 to 8 percent slopes
427	Torriorthents, very steep
428	Touhey complex, 0 to 8 percent slopes
429	Touhey complex, 8 to 15 percent slopes
430	Touhey complex, 15 to 30 percent slopes
431	Touhey ashy fine sandy loam, low elevation, 3 to 8 percent slopes
432	Touhey ashy fine sandy loam, low elevation, 8 to 15 percent slopes
433	Touhey ashy fine sandy loam, low elevation, 15 to 30 percent slopes
434	Touhey-Argabak complex, 0 to 15 percent slopes
435	Touhey-Argabak-Rock outcrop complex, 15 to 30 percent slopes
436	Touhey-Argabak-Rock outcrop complex, 30 to 65 percent slopes
437	Touhey-Lickskillet-Argabak complex, 0 to 15 percent slopes
438	Touhey-Stubblefield complex, 0 to 8 percent slopes
439	Touhey-Stubblefield complex, 8 to 15 percent slopes
440	Touhey-Stubblefield complex, 15 to 30 percent slopes
441	Touhey-Stubblefield-Stubblefield extremely bouldery complex, 3 to 15 percent slopes
442	Touhey-Stubblefield-Tagear complex, 0 to 15 percent slopes
443	Tubspring ashy fine sandy loam, 0 to 8 percent slopes
444	Tubspring ashy fine sandy loam, 8 to 15 percent slopes
445	Tubspring ashy fine sandy loam, thin solum, 0 to 3 percent slopes
446	Tubspring-DelRio-Strat complex, 0 to 8 percent slopes
447	Van Nostern silt loam, 3 to 8 percent slopes
448	Van Nostern silt loam, 8 to 15 percent slopes
449	Van Nostern silt loam, 15 to 30 percent slopes
450	Van Nostern-Argabak-Camaspatch complex, 3 to 30 percent slopes
451	Van Nostern-Camaspatch complex, 3 to 8 percent slopes
452	Van Nostern-Camaspatch complex, 8 to 15 percent slopes
453	Van Nostern-Camaspatch complex, 15 to 30 percent slopes
454	Vitrandic Argixerolls-Argabak complex, 30 to 60 percent slopes
455	Warden very fine sandy loam, 3 to 8 percent slopes
456	Watco ashy fine sandy loam, 30 to 60 percent slopes
457	Watco-Dezellem-Timentwa complex, 3 to 35 percent slopes
458	Water
459	Waterflat ashy fine sandy loam, 0 to 3 percent slopes
460	Wellsdam ashy fine sandy loam, 3 to 8 percent slopes
461	Wellsdam ashy fine sandy loam, 8 to 15 percent slopes
462	Wellsdam ashy fine sandy loam, 15 to 30 percent slopes
463	Wellsdam ashy fine sandy loam, 30 to 65 percent slopes
464	Wellsdam-Couleedam-Rock outcrop complex, 3 to 30 percent slopes
465	Wellsdam-Couleedam-Rock outcrop complex, 30 to 60 percent slopes
466	Wellsdam-Peshastin complex, 3 to 8 percent slopes
467	Wellsdam-Peshastin complex, 8 to 15 percent slopes
468	Wellsdam-Peshastin complex, 15 to 30 percent slopes
469	Whiteye ashy fine sandy loam, 0 to 8 percent slopes
470	Willis silt loam, 0 to 3 percent slopes
471	Willis silt loam, 3 to 8 percent slopes
472	Willis silt loam, 8 to 15 percent slopes
473	Willock ashy fine sandy loam, 0 to 8 percent slopes
474	Willock ashy fine sandy loam, 8 to 15 percent slopes
475	Willock complex, 8 to 15 percent slopes
476	Willock complex, 15 to 30 percent slopes
477	Willock complex, 30 to 60 percent slopes
478	Willock-Conconully complex, 3 to 8 percent slopes
479	Willock-Conconully complex, 8 to 15 percent slopes
480	Willock-Conconully complex, 15 to 30 percent slopes
481	Willock-Watco complex, 15 to 30 percent slopes
482	Willock-Watco complex, 30 to 60 percent slopes
483	Winblow ashy fine sandy loam, 0 to 8 percent slopes
484	Winblow ashy fine sandy loam, 8 to 15 percent slopes
485	Winblow-Argabak-Horseflat complex, 0 to 20 percent slopes
486	Xerofluvents-Beverly association, 0 to 15 percent slopes
487	Zeemal ashy fine sandy loam, 0 to 3 percent slopes
488	Zeemal ashy fine sandy loam, 3 to 8 percent slopes
489	Zen silt loam, 0 to 3 percent slopes
490	Zen silt loam, 3 to 8 percent slopes
491	Zen silt loam, 8 to 15 percent slopes
492	Zen silt loam, 15 to 30 percent slopes
493	Zen-Argabak-Horseflat complex, 0 to 20 percent slopes
494	Zen-Horseflat complex, 3 to 8 percent slopes
495	Zen-Horseflat complex, 8 to 15 percent slopes
496	Zen-Horseflat-Benwy complex, 3 to 8 percent slopes
497	Zen-Horseflat-Ralls complex, 8 to 15 percent slopes
498	Zen-Horseflat-Ralls complex, 15 to 30 percent slopes
499	Zen-Lickskillet-Ralls complex, 5 to 45 percent slopes
500	Pits

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES
- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline
- Previously Published Survey

OTHER BOUNDARY (label)
- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION
- Divided roads
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS
- Interstate — 173; 79 345
- Federal — 287; 410 224
- State — 52; 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES
- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS
- Medium or Small — W

LANDFORM FEATURES
- Prominent hill or peak
- Soil Sample Site

Other cultural features:
- Farmstead, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and/or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS
- Perennial, double line
- Perennial, single line — Label only
- Intermittent — Label only
- Drainage end — Label only

DRAINAGE AND IRRIGATION
- Double-line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch — Label only
- Intermittent drainage and/ or irrigation ditch — Label only

SMALL LAKES, PONDS AND RESERVOIRS
- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES
- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — 1 16

LANDFORM FEATURES

ESCARPMENTS
- Bedrock
- Other than bedrock

SHORT STEEP SLOPE

GULLY

DEPRESSION, closed

SINKHOLE

EXCAVATIONS

PITS
- Borrow pits
- Gravel pit
- Mine or quarry

LANDFILL

MISCELLANEOUS SURFACE FEATURES
- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

AD HOC FEATURES
- Intermittent water
- Saline/sodic area
- Very bouldery

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
HOPKINS CANYON SW QUADRANGLE
SHEET NUMBER 1 OF 184

119°15′00″ — 119°11′15″

3333000m E · 34 · 35 · 36 · 37

48°11′15″ — 48°07′30″

5339 · 5338000mN · 5337 · 5336 · 5335 · 5334 · 5333000mN

Joins sheet 2 Hopkins Canyon SE

Joins sheet 13 Trefry Canyon NE

Joins sheet 14 Alameda Flat NW

Joins sheet 15 Alameda Flat NE

OKANOGAN COUNTY
COLUMBIA RIVER
RUFUS WOODS LAKE
458
427
262
5
4

T. 30 N.

R. 29 E.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

2 HOPKINS CANYON SE
13 TREFRY CANYON NE
14 ALAMEDA FLAT NW
15 ALAMEDA FLAT NE

HOPKINS CANYON SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 1 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
HOPKINS CANYON SE QUADRANGLE
SHEET NUMBER 2 OF 184

119°11'15" 119°07'30"

48°11'15" 48°07'30"

R. 29 E.

T. 31 N. T. 30 N.

OKANOGAN COUNTY

COLUMBIA RIVER LAKE WOODS RUFUS

Joins sheet 1 Hopkins Canyon SW

Joins sheet 3 Armstrong Creek SW

Joins sheet 14 Alameda Flat NW

Joins sheet 15 Alameda Flat NE

Joins sheet 16 Sanderson Creek NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

		1
		3
14	15	16

1 HOPKINS CANYON SW
3 ARMSTRONG CREEK SW
14 ALAMEDA FLAT NW
15 ALAMEDA FLAT NE
16 SANDERSON CREEK NW

HOPKINS CANYON SE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 2 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ARMSTRONG CREEK SW QUADRANGLE
SHEET NUMBER 3 OF 184

119° 07′ 30″ — 119° 03′ 45″

R. 29 E. — R. 30 E

48° 11′ 15″ — 48° 07′ 30″

Joins sheet 2 Hopkins Canyon SE — *Joins sheet 4 Armstrong Creek SE* — *Joins sheet 16 Sanderson Creek NW* — *Joins sheet 15 Alameda Flat NE* — *Joins sheet 17 Sanderson Creek NE*

OKANOGAN COUNTY

COLUMBIA RIVER

RUFUS WOODS LAKE

Bissell Flat

T. 31 N.
T. 30 N.

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

2		4
15	16	17

2 HOPKINS CANYON SE
4 ARMSTRONG CREEK SE
15 ALAMEDA FLAT NE
16 SANDERSON CREEK NW
17 SANDERSON CREEK NE

ARMSTRONG CREEK SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 3 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ARMSTRONG CREEK SE QUADRANGLE
SHEET NUMBER 4 OF 184

119° 03′ 45″ — 119° 00′ 00″

347 000m E — 348 — 349 — 350 — 351

48° 11′ 15″

5338 — 53 38

5337 000mN — 53 37 000mN

5336 — 53 36

5335 — 53 35

5334 — 53 34

53 33

48° 07′ 30″

5332 000mN — 53 32 000mN

Joins sheet 3 Armstrong Creek SW

458 — OKANOGAN COUNTY — COLUMBIA RIVER — RUFUS WOODS LAKE

172 — 274 — Bissell Flat — 4 — 374 — 277 — 274 — 374 — 80 — 107 — 5 — 248 — 171 — 458 — 274 — 427

T. 30 N.

R. 30 E.

Joins sheet 16 Sanderson Creek NW

Joins sheet 17 Sanderson Creek NE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

3			3 ARMSTRONG CREEK SW
			16 SANDERSON CREEK NW
16	17		17 SANDERSON CREEK NE

INDEX TO ADJOINING 3.75 MAPS

ARMSTRONG CREEK SE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 4 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BREWSTER NW QUADRANGLE
SHEET NUMBER 5 OF 184

119°52′30″ — 119°48′45″ — 48°07′30″ — 48°03′45″

R. 24 E.

T. 30 N.

OKANOGAN COUNTY

LAKE PATEROS

COLUMBIA RIVER

Joins sheet 6 Brewster NE

Joins sheet 18 Pateros SE

Joins sheet 19 Brewster SW

Joins sheet 20 Brewster SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

6 BREWSTER NE
18 PATEROS SE
19 BREWSTER SW
20 BREWSTER SE

BREWSTER NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 5 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BREWSTER NE QUADRANGLE
SHEET NUMBER 6 OF 184

119° 48′ 45″ — 119° 45′ 00″
48° 07′ 30″ — 48° 03′ 45″
291 000mE — 292 — 293 — 294 — 295
5332 000mN — 5331 — 5330 — 5329 — 5328 — 5327 000mN
T. 30 N.
R. 24 E. — R. 25 E.

LAKE PATEROS
COLUMBIA RIVER
OKANOGAN COUNTY
173

22 — 23 — 24 — 19
27 — 26 — 25 — 30

Joins sheet 5 Brewster NW
Joins sheet 7 Bridgeport NW
Joins sheet 19 Brewster SW
Joins sheet 20 Brewster SE
Joins sheet 21 Bridgeport SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

5		7
19	20	21

5 BREWSTER NW
7 BRIDGEPORT NW
19 BREWSTER SW
20 BREWSTER SE
21 BRIDGEPORT SW

BREWSTER NE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 6 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT NW QUADRANGLE
SHEET NUMBER 7 OF 184

119° 45′ 00″ — 119° 41′ 15″ — 48° 07′ 30″ — 48° 03′ 45″

396 000m E — 397 — 398 — 399 — 400

5332 000m N — 5331 — 5330 — 5329 — 5328 — 5327 000m N

5333 — 5332 — 5331 — 5330 — 5329 — 5328 — 5327 000m N

OKANOGAN COUNTY

LAKE PATEROS

COLUMBIA RIVER

BRIDGEPORT BAR STATE WILDLIFE RECREATION AREA

BRIDGEPORT BAR

19 20 21 22 27 28 29 30

T. 30 N.

R. 25 E.

Joins sheet 6 Brewster NE

Joins sheet 8 Bridgeport NE

Joins sheet 20 Brewster SE

Joins sheet 21 Bridgeport SW

Joins sheet 22 Bridgeport SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

6		8	6	BREWSTER NE
			8	BRIDGEPORT NE
20	21	22	20	BREWSTER SE
			21	BRIDGEPORT SW
			22	BRIDGEPORT SE

BRIDGEPORT NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 7 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT NE QUADRANGLE
SHEET NUMBER 8 OF 184

119° 41'15" 119° 37'30"

300 000m E 301 302 303 304

48° 07'30" 48° 07'30"

5333 5331 5329 5327 000m N

5333 5331 5330 5329 5328 5327 000m N

Joins sheet 7 Bridgeport NW

OKANOGAN COUNTY

458

LAKE

PATEROS

COLUMBIA RIVER

274 458 231 427 232 71 56

22

27

CHIEF JOSEPH STATE PARK

T. 30 N.

R. 25 E.

48° 03'45" 48° 03'45"

300 000m E 301 302 303 304

119° 41'15" 119° 37'30"

Joins sheet 22 Bridgeport SE

Joins sheet 21 Bridgeport SW

Joins sheet 23 Bridgeport Point SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

	7	
21	22	23

7 BRIDGEPORT NW
21 BRIDGEPORT SW
22 BRIDGEPORT SE
23 BRIDGEPORT POINT SW

BRIDGEPORT NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT POINT NE QUADRANGLE
SHEET NUMBER 9 OF 184

119° 33′ 45″ — 119° 30′ 00″ — 48° 07′ 30″ — 48° 03′ 45″

309 000mE — 310 — 311 — 312 — 313 — 314

5332 — 5331 — 5330 — 5329 — 5328 — 5327 000mN

T. 30 N. — R. 26 E.

Joins sheet 10 Stubblefield Point NW

Joins sheet 24 Bridgeport Point SE

Joins sheet 23 Bridgeport Point SW

Joins sheet 25 Stubblefield Point SW

RUFUS WOODS LAKE

COLUMBIA RIVER

OKANOGAN COUNTY

OKANOGAN COUNTY

24 — 25 — 36

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

		10
23	24	25

10 STUBBLEFIELD POINT NW
23 BRIDGEPORT POINT SW
24 BRIDGEPORT POINT SE
25 STUBBLEFIELD POINT SW

INDEX TO ADJOINING 3.75 MAPS

BRIDGEPORT POINT NE, WASHINGTON

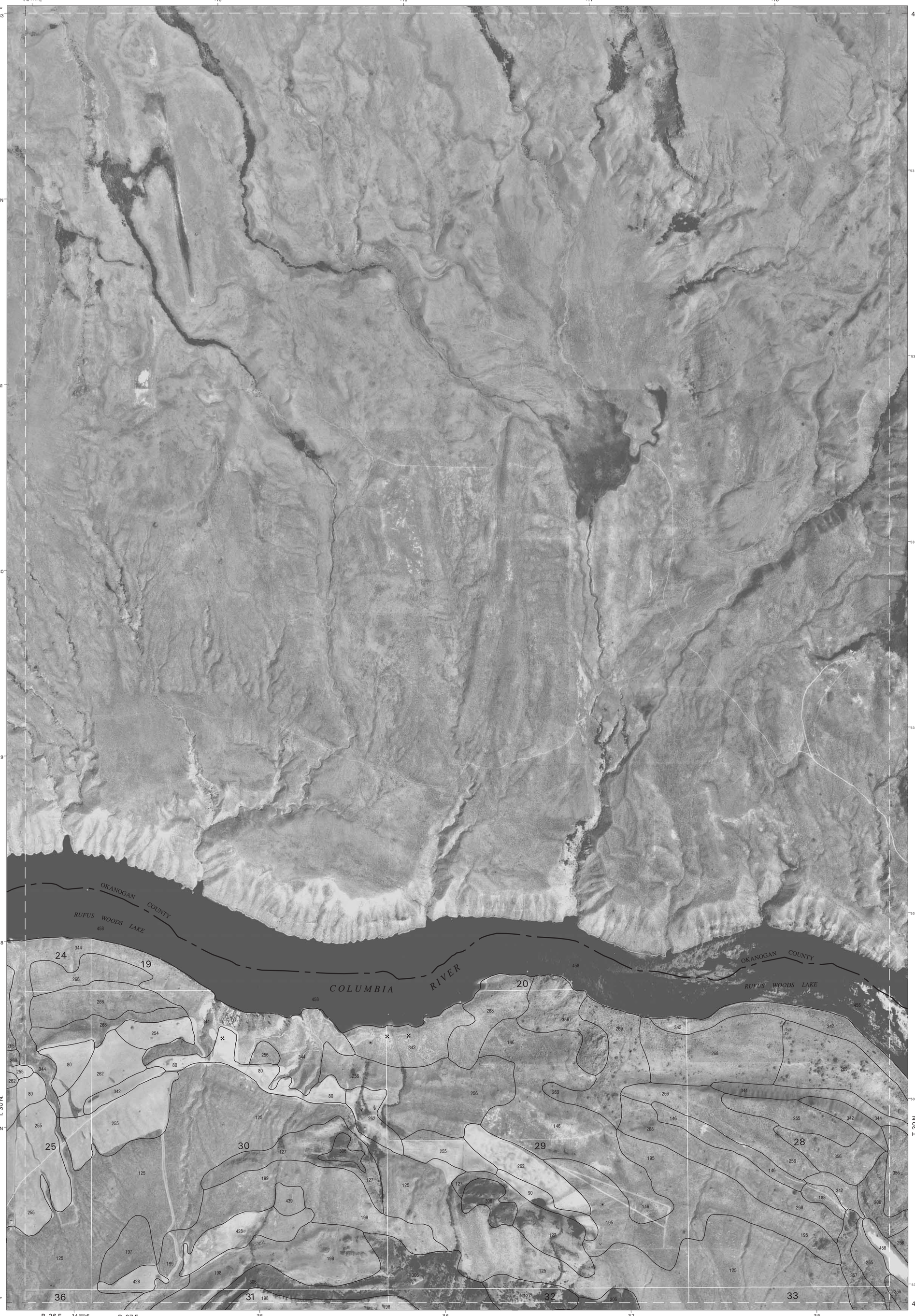
3.75 MINUTE SERIES
SHEET NUMBER 9 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
STUBBLEFIELD POINT NW QUADRANGLE
SHEET NUMBER 10 OF 184

119° 30′ 00″ — 119° 26′ 15″
48° 07′ 30″ — 48° 03′ 45″
314 000mE — 315 — 316 — 317 — 318
5332 000mN — 5331 — 5330 — 5329 — 5328 — 5327 000mN — 5326 000mN
5332 — 5331 000mN — 5330 — 5329 — 5328 — 5327 — 5326 000mN



Joins sheet 9 Bridgeport Point NE

Joins sheet 11 Stubblefield Point NE

Joins sheet 24 Bridgeport Point SE

Joins sheet 25 Stubblefield Point SW

Joins sheet 26 Stubblefield Point SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

9		11
24	25	26

9 BRIDGEPORT POINT NE
11 STUBBLEFIELD POINT NE
24 BRIDGEPORT POINT SE
25 STUBBLEFIELD POINT SW
26 STUBBLEFIELD POINT SE

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STUBBLEFIELD POINT NW, WASHINGTON

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SHEET NUMBER 10 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
STUBBLEFIELD POINT NE QUADRANGLE
SHEET NUMBER 11 OF 184

119° 26′15″ — 119° 22′30″ — 48° 07′30″ — 48° 03′45″

319 000mE — 320 — 321 — 322 — 323

5332 — 5331 000mN — 5330 — 5329 — 5328 — 5327 — 5326 000mN

T. 30 N. — R. 27 E.

Joins sheet 10 Stubblefield Point NW

Joins sheet 12 Trefry Canyon NW

Joins sheet 25 Stubblefield Point SW

Joins sheet 26 Stubblefield Point SE

Joins sheet 27 Trefry Canyon SW

COLUMBIA RIVER

OKANOGAN COUNTY

ROBIDS WOODS LANE

458 342 269 342 344 268 356 458 358 355 268 306 256 80 458 268 255 27 344 356 33 34 357 28

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

10		12
25	26	27

10 STUBBLEFIELD POINT NW
12 TREFRY CANYON NW
25 STUBBLEFIELD POINT SW
26 STUBBLEFIELD POINT SE
27 TREFRY CANYON SW

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STUBBLEFIELD POINT NE, WASHINGTON

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
TREFRY CANYON NW QUADRANGLE
SHEET NUMBER 12 OF 184

119°22′30″ — 119°18′45″ — R. 28 E.

48°07′30″ — 48°03′45″

T. 30 N.

Joins sheet 11 Stubblefield Point NE — *Joins sheet 13 Trefry Canyon NE* — *Joins sheet 27 Trefry Canyon SW* — *Joins sheet 26 Stubblefield Point SE* — *Joins sheet 28 Trefry Canyon SE*

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

11		13
26	27	28

11 STUBBLEFIELD POINT NE
13 TREFRY CANYON NE
26 STUBBLEFIELD POINT SE
27 TREFRY CANYON SW
28 TREFRY CANYON SE

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TREFRY CANYON NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 12 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
TREFRY CANYON NE QUADRANGLE
SHEET NUMBER 13 OF 184

Joins sheet 1 Hopkins Canyon SW

119°18′45″ — 119°15′00″ — 48°07′30″ — 48°03′45″

R. 28 E. — 328 000m E — 329 — 330 — 331 — 332

T. 30 N.

5331 000mN — 5332 — 5330 — 5329 — 5328 — 5327 — 5326 000mN

5332 — 5331 000mN — 5330 — 5329 — 5328 — 5327 — 5326 000mN

COLUMBIA RIVER — OKANOGAN COUNTY — RUFUS WOODS LAKE

Jackass Butte — Castle Rock — Canyon — Pitt

9 — 10 — 13 — 14 — 15 — 16 — 21 — 22 — 23 — 24 — 25 — 26 — 27 — 28 — 33 — 34 — 35 — 36

Joins sheet 12 Trefry Canyon NW — Joins sheet 14 Alameda Flat NW — Joins sheet 27 Trefry Canyon SW — Joins sheet 29 Alameda Flat SW — Joins sheet 28 Trefry Canyon SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

		1	1 HOPKINS CANYON SW
12		14	12 TREFRY CANYON NW 14 ALAMEDA FLAT NW
27	28	29	27 TREFRY CANYON SW 28 TREFRY CANYON SE 29 ALAMEDA FLAT SW

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TREFRY CANYON NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ALAMEDA FLAT NW QUADRANGLE
SHEET NUMBER 14 OF 184

119°15′00″ — 119°11′15″

Joins sheet 1 Hopkins Canyon SW

Joins sheet 2 Hopkins Canyon SE

R. 28 E. — R. 29 E.

48°07′30″

48°03′45″

T. 30 N.

COLUMBIA RIVER

OKANOGAN COUNTY

LAKE WOODS

RUFUS

ALAMEDA

FLAT

STRAHL CANYON

Buck Canyon

Joins sheet 13 Trefry Canyon NE

Joins sheet 15 Alameda Flat NE

Joins sheet 28 Trefry Canyon SE

Joins sheet 29 Alameda Flat SW

Joins sheet 30 Alameda Flat SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	1	2	1 HOPKINS CANYON SW
			2 HOPKINS CANYON SE
13		15	13 TREFRY CANYON NE
			15 ALAMEDA FLAT NE
			28 TREFRY CANYON SE
			29 ALAMEDA FLAT SW
28	29	30	30 ALAMEDA FLAT SE

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ALAMEDA FLAT NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 14 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 1 Hopkins Canyon SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ALAMEDA FLAT NE QUADRANGLE
SHEET NUMBER 15 OF 184

Joins sheet 3 Armstrong Creek SW

Joins sheet 2 Hopkins Canyon SE

119°11'15" — 119°07'30"

R. 29 E.

48°07'30" — 48°03'45"

T. 30 N.

Joins sheet 14 Alameda Flat NW

Joins sheet 16 Sanderson Creek NW

Joins sheet 29 Alameda Flat SW

Joins sheet 30 Alameda Flat SE

Joins sheet 31 Sanderson Creek SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

1	2	3	1 HOPKINS CANYON SW 2 HOPKINS CANYON SE 3 ARMSTRONG CREEK SW
14		16	14 ALAMEDA FLAT NW 16 SANDERSON CREEK NW
29	30	31	29 ALAMEDA FLAT SW 30 ALAMEDA FLAT SE 31 SANDERSON CREEK SW

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ALAMEDA FLAT NE, WASHINGTON

3.75 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
SANDERSON CREEK NW QUADRANGLE
SHEET NUMBER 16 OF 184

Joins sheet 2 Hopkins Canyon SE

Joins sheet 3 Armstrong Creek SW

Joins sheet 4 Armstrong Creek SE

119° 07′ 30″ — 119° 03′ 45″ — 48° 07′ 30″ — 48° 03′ 45″

342 000m E — 343 — 344 — 345 — 346

R. 29 E. — R. 30 E.

53 32 — 53 31 000m N — 53 30 — 53 29 — 53 28 — 53 27 — 53 26 000m N

T. 30 N.

Black Lake — Rock Lake — China Creek — School Creek

Joins sheet 15 Alameda Flat NE

Joins sheet 17 Sanderson Creek NE

Joins sheet 30 Alameda Flat SE

Joins sheet 31 Sanderson Creek SW

Joins sheet 32 Sanderson Creek SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

2	3	4	2	HOPKINS CANYON SE
			3	ARMSTRONG CREEK SW
			4	ARMSTRONG CREEK SE
15		17	15	ALAMEDA FLAT NE
			17	SANDERSON CREEK NE
30	31	32	30	ALAMEDA FLAT SE
			31	SANDERSON CREEK SW
			32	SANDERSON CREEK SE

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SANDERSON CREEK NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 16 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 3 Armstrong Creek SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
SANDERSON CREEK NE QUADRANGLE
SHEET NUMBER 17 OF 184

Joins sheet 4 Armstrong Creek SE

119° 03′ 45″ — 119° 00′ 00″ — 48° 07′ 30″ — 48° 03′ 45″

347 000m E — 348 — 349 — 350 — 351

R. 30 E.

5332 — 5331 — 5330 — 5329 — 5328 — 5327 — 5326 000mN — 5325 000mN

5331 000mN — 5330 000mN — 53 31 — 53 30 — 53 29 — 53 28 — 53 27 — 53 26 — 53 25

T. 30 N.

OKANOGAN COUNTY
COLUMBIA RIVER
RUFUS WOODS LAKE
OKANOGAN COUNTY
COLUMBIA RIVER

Deep Canyon
School Creek

4 9 10 16 15 21 22 28 27 33 34 5

Joins sheet 16 Sanderson Creek NW

Joins sheet 31 Sanderson Creek SW

Joins sheet 32 Sanderson Creek SE

Joins sheet 33 Belvedere SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

3	4		3 ARMSTRONG CREEK SW 4 ARMSTRONG CREEK SE
16			16 SANDERSON CREEK NW
31	32	33	31 SANDERSON CREEK SW 32 SANDERSON CREEK SE 33 BELVEDERE SW

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SANDERSON CREEK NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
PATEROS SE QUADRANGLE
SHEET NUMBER 18 OF 184

Joins sheet 5 Brewster NW

119°56'15" 119°52'30"

48°03'45" 48°00'00"

R. 23 E. R. 24 E.

T. 30 N.
T. 29 N.

OKANOGAN COUNTY
COLUMBIA RIVER
LAKE PATEROS
Dougherty Canyon

Joins sheet 19 Brewster SW

Joins sheet 34 Azwell NE

Joins sheet 35 Wells Dam NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

5 BREWSTER NW
19 BREWSTER SW
34 AZWELL NE
35 WELLS DAM NW

PATEROS SE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BREWSTER SW QUADRANGLE
SHEET NUMBER 19 OF 184

119°52′30″ 119°48′45″

48°03′45″ 48°00′00″

Joins sheet 5 Brewster NW

Joins sheet 6 Brewster NE

Joins sheet 18 Pateros SE

Joins sheet 20 Brewster SE

Joins sheet 34 Azwell NE

Joins sheet 35 Wells Dam NW

Joins sheet 36 Wells Dam NE

R. 24 E.

T. 30 N.
T. 29 N.

CENTRAL FERRY STATE WILDLIFE RECREATION AREA

COLUMBIA RIVER

LAKE PATEROS

OKANOGAN COUNTY

Dougherty Canyon

Central Ferry Canyon

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

	5	6
18		20
34	35	36

5 BREWSTER NW
6 BREWSTER NE
18 PATEROS SE
20 BREWSTER SE
34 AZWELL NE
35 WELLS DAM NW
36 WELLS DAM NE

BREWSTER SW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 5 Brewster NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BREWSTER SE QUADRANGLE
SHEET NUMBER 20 OF 184

Joins sheet 7 Bridgeport NW

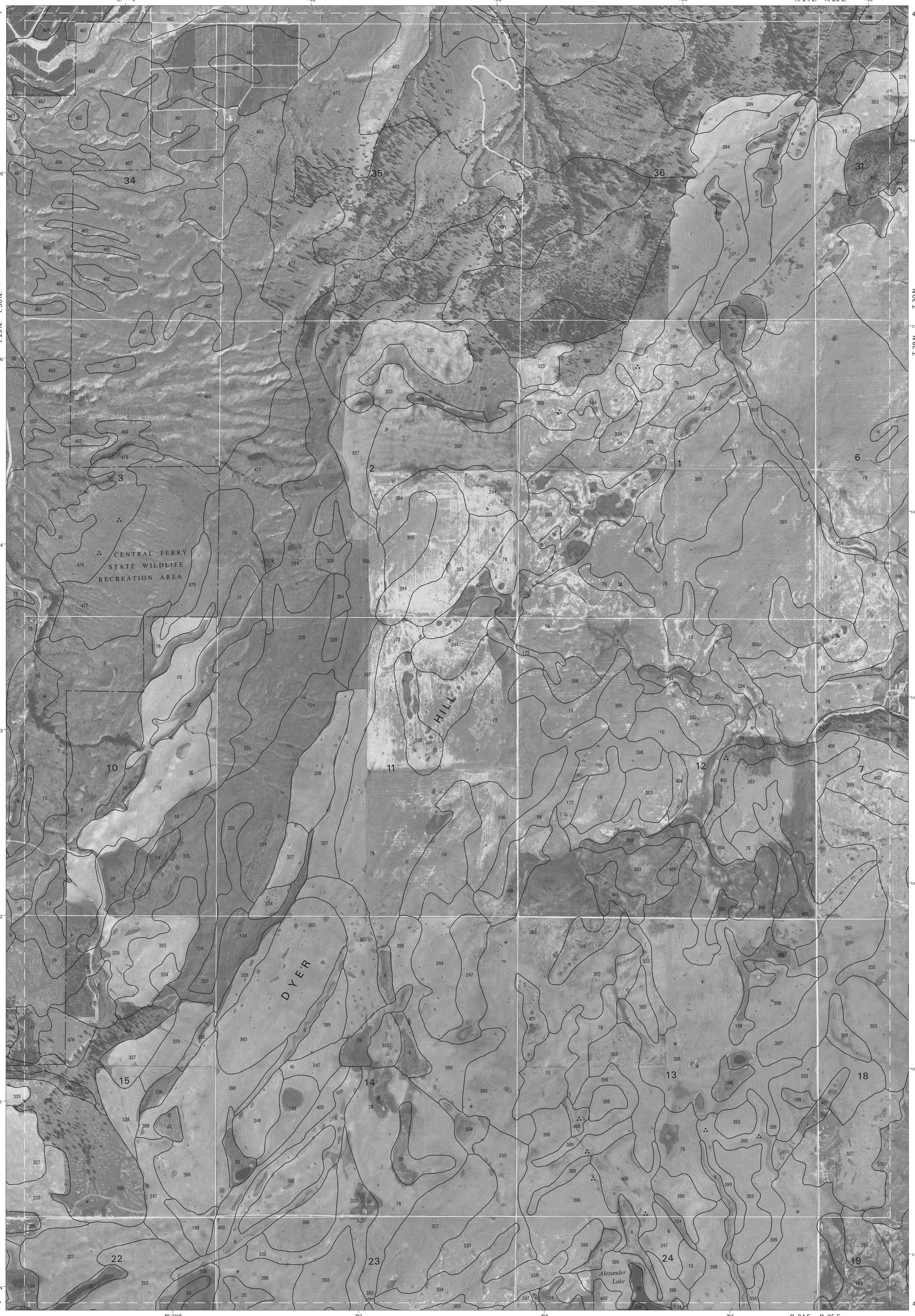
Joins sheet 6 Brewster NE

119° 48′ 45″ — 119° 45′ 00″

48° 03′ 45″ — 48° 00′ 00″

R. 24 E. — R. 25 E.

T. 30 N. — T. 29 N.



Joins sheet 19 Brewster SW

Joins sheet 21 Bridgeport SW

Joins sheet 35 Wells Dam NW

Joins sheet 36 Wells Dam NE

Joins sheet 37 Chief Joseph Dam NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

5	6	7	5 BREWSTER NW 6 BREWSTER NE 7 BRIDGEPORT NW
19		21	19 BREWSTER SW 21 BRIDGEPORT SW
35	36	37	35 WELLS DAM NW 36 WELLS DAM NE 37 CHIEF JOSEPH DAM NW

BREWSTER SE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT SW QUADRANGLE
SHEET NUMBER 21 OF 184

119° 45′ 00″ — 119° 41′ 15″ — 48° 03′ 45″ — 48° 00′ 00″

R. 25 E.

T. 30 N. — T. 29 N.

Rocky Butte — Castle Rock — Rattlesnake Point — Downing — DYER HILL — COLUMBIA RIVER — OKANOGAN COUNTY — Dry Creek

Joins sheet 20 Brewster SE

Joins sheet 22 Bridgeport SE

Joins sheet 36 Wells Dam NE

Joins sheet 37 Chief Joseph Dam NW

Joins sheet 38 Chief Joseph Dam NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

6	7	8
20		22
36	37	38

6 BREWSTER NE
7 BRIDGEPORT NW
8 BRIDGEPORT NE
20 BREWSTER SE
22 BRIDGEPORT SE
36 WELLS DAM NE
37 CHIEF JOSEPH DAM NW
38 CHIEF JOSEPH DAM NE

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BRIDGEPORT SW, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT SE QUADRANGLE
SHEET NUMBER 22 OF 184

Joins sheet 7 Bridgeport NW

Joins sheet 8 Bridgeport NE

119° 41'15" — 119° 37'30" — 48° 03'45" — 48° 00'00"

R. 25 E.

T. 30 N.

T. 29 N.

300 000m E — 301 — 302 — 303 — 304

53 26 — 53 25 000m N — 53 24 — 53 23 — 53 22 — 53 21 — 53 20 000m N

COLUMBIA RIVER

OKANOGAN COUNTY

Bridgeport

Joins sheet 21 Bridgeport SW

Joins sheet 23 Bridgeport Point SW

Joins sheet 37 Chief Joseph Dam NW

Joins sheet 38 Chief Joseph Dam NE

Joins sheet 39 Coleman Hill NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

7	8	
21		23
37	38	39

7 BRIDGEPORT NW
8 BRIDGEPORT NE
21 BRIDGEPORT SW
23 BRIDGEPORT POINT SW
37 CHIEF JOSEPH DAM NW
38 CHIEF JOSEPH DAM NE
39 COLEMAN HILL NW

INDEX TO ADJOINING 3.75 MAPS

BRIDGEPORT SE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT POINT SW QUADRANGLE
SHEET NUMBER 23 OF 184

119° 37′ 30″ — 119° 33′ 45″ — 48° 03′ 45″ — 48° 00′ 00″

R. 26 E.

T. 29 N.

Joins sheet 8 Bridgeport NE

Joins sheet 9 Bridgeport Point NE

Joins sheet 22 Bridgeport SE

Joins sheet 24 Bridgeport Point SE

Joins sheet 38 Chief Joseph Dam NE

Joins sheet 39 Coleman Hill NW

Joins sheet 40 Coleman Hill NE

RIVER

COLUMBIA

RUFUS WOODS LAKE

OKANOGAN COUNTY

OKANOGAN COUNTY

ROAD

HILL

PEARL

Jordan Creek

8

9

16

17

19

20

21

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

8		9
22		24
38	39	40

8 BRIDGEPORT NE
9 BRIDGEPORT POINT NE
22 BRIDGEPORT SE
24 BRIDGEPORT POINT SE
38 CHIEF JOSEPH DAM NE
39 COLEMAN HILL NW
40 COLEMAN HILL NE

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BRIDGEPORT POINT SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 23 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
BRIDGEPORT POINT SE QUADRANGLE
SHEET NUMBER 24 OF 184

Joins sheet 9 Bridgeport Point NE

Joins sheet 10 Stubblefield Point NW

119° 33′ 45″ — 309 000m E — 310 — 311 — R. 26 E. — 312 — 313 — R. 26 E. — 119° 30′ 00″

48° 03′ 45″ — 53 26 — 53 25 000m N — 53 24 — 53 23 — 53 22 — 53 21 — 53 20 000m N — 48° 00′ 00″

T. 30 N. — T. 29 N.

OKANOGAN COUNTY

COLUMBIA RIVER

RUFUS WOODS LAKE

Brandts Landing

PEARL HILL ROAD

Joins sheet 23 Bridgeport Point SW

Joins sheet 25 Stubblefield Point SW

Joins sheet 39 Coleman Hill NW

Joins sheet 40 Coleman Hill NE

Joins sheet 41 Leahy NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	9	10	9 BRIDGEPORT POINT NE
23		25	10 STUBBLEFIELD POINT NW
			23 BRIDGEPORT POINT SW
			25 STUBBLEFIELD POINT SW
39	40	41	39 COLEMAN HILL NW
			40 COLEMAN HILL NE
			41 LEAHY NW

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BRIDGEPORT POINT SE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
STUBBLEFIELD POINT SW QUADRANGLE
SHEET NUMBER 25 OF 184

119° 30′ 00″ — 119° 26′ 15″ — 48° 03′ 45″ — 48° 00′ 00″

R. 26 E. — R. 27 E. — T. 30 N. — T. 29 N. — T. 23 N. — T. 22 N. — T. 21 N. — T. 20 N.

14 000mE — 315 — 316 — 317 — 318

53 26 — 53 25 — 53 25 000mN — 53 24 — 53 24 000mN — 53 23 — 53 22 — 53 21 — 53 20 000mN — 53 19 000mN

Sections: 36, 31, 32, 33, 1, 6, 5, 4, 12, 7, 8, 9, 13, 18, 17, 16, 24, 19, 20, 21

Lone Pine Lake 458

Judson Lake 458

Murphy Lake 458

Klinkhammer Lakes 458

PEARL HILL

Joins sheet 24 Bridgeport Point SE

Joins sheet 26 Stubblefield Point SE

Joins sheet 40 Coleman Hill NE

Joins sheet 41 Leahy NW

Joins sheet 42 Leahy NE

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North American Datum of 1983 (NAD83), GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

9	10	11
24		26
40	41	42

INDEX TO ADJOINING 3.75 MAPS

9 BRIDGEPORT POINT NE
10 STUBBLEFIELD POINT NW
11 STUBBLEFIELD POINT NE
24 BRIDGEPORT POINT SE
26 STUBBLEFIELD POINT SE
40 COLEMAN HILL NE
41 LEAHY NW
42 LEAHY NE

STUBBLEFIELD POINT SW, WASHINGTON
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
STUBBLEFIELD POINT SE QUADRANGLE
SHEET NUMBER 26 OF 184

119° 26′15″ — 119° 22′30″ — 48° 03′45″ — 48° 00′00″

R. 27 E.

T. 30 N. — T. 29 N.

OKANOGAN COUNTY
RUFUS WOODS LAKE
COLUMBIA RIVER
OKANOGAN COUNTY
RUFUS WOODS LAKE
Duley Lake
Ragged Butte

Joins sheet 25 Stubblefield Point SW

Joins sheet 27 Trefry Canyon SW

Joins sheet 41 Leahy NW

Joins sheet 42 Leahy NE

Joins sheet 43 Foster Coulee NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

10	11	12
25		27
41	42	43

INDEX TO ADJOINING 3.75 MAPS

10 STUBBLEFIELD POINT NW
11 STUBBLEFIELD POINT NE
12 TREFRY CANYON NW
25 STUBBLEFIELD POINT SW
27 TREFRY CANYON SW
41 LEAHY NW
42 LEAHY NE
43 FOSTER COULEE NW

STUBBLEFIELD POINT SE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 26 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
TREFRY CANYON SW QUADRANGLE
SHEET NUMBER 27 OF 184

119°22′30″ — 119°18′45″ — 48°03′45″ — 48°00′00″

R. 27 E. — R. 28 E.

T. 30 N. — T. 29 N.

OKANOGAN COUNTY
COLUMBIA RIVER
OKANOGAN COUNTY
LAKE WOODS
RUFUS
Allen Bar
Trefry Canyon
Long Ridge
Tag Ear Lake

Joins sheet 26 Stubblefield Point SE

Joins sheet 28 Trefry Canyon SE

Joins sheet 42 Leahy NE

Joins sheet 43 Foster Coulee NW

Joins sheet 44 Foster Coulee NE

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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

11	12	13	11 STUBBLEFIELD POINT NE 12 TREFRY CANYON NW 13 TREFRY CANYON NE
26		28	26 STUBBLEFIELD POINT SE 28 TREFRY CANYON SE
42	43	44	42 LEAHY NE 43 FOSTER COULEE NW 44 FOSTER COULEE NE

INDEX TO ADJOINING 3.75 MAPS

TREFRY CANYON SW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
TREFRY CANYON SE QUADRANGLE
SHEET NUMBER 28 OF 184

119°18′45″ — 119°15′00″ — 48°03′45″ — 48°00′00″

R. 28 E.

T. 30 N. — T. 29 N.

Joins sheet 27 Trefry Canyon SW

Joins sheet 29 Alameda Flat SW

Joins sheet 43 Foster Coulee NW

Joins sheet 44 Foster Coulee NE

Joins sheet 45 Barker Canyon NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

12	13	14	12 TREFRY CANYON NW 13 TREFRY CANYON NE 14 ALAMEDA FLAT NW
27		29	27 TREFRY CANYON SW 29 ALAMEDA FLAT SW
43	44	45	43 FOSTER COULEE NW 44 FOSTER COULEE NE 45 BARKER CANYON NW

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TREFRY CANYON SE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 13 Trefry Canyon NE

UNITED STATES
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Joins sheet 14 Alameda Flat NW

DOUGLAS COUNTY, WASHINGTON
ALAMEDA FLAT SW QUADRANGLE
SHEET NUMBER 29 OF 184

Joins sheet 15 Alameda Flat NE

119°15′00″ — 119°11′15″ — 48°03′45″ — 48°00′00″

R. 28 E. — R. 29 E.

T. 30 N. — T. 29 N.

Joins sheet 28 Trefry Canyon SE

Joins sheet 30 Alameda Flat SE

Joins sheet 44 Foster Coulee NE

Joins sheet 45 Barker Canyon NW

Joins sheet 46 Barker Canyon NE

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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

13	14	15	13 TREFRY CANYON NE 14 ALAMEDA FLAT NW 15 ALAMEDA FLAT NE
28		30	28 TREFRY CANYON SE 30 ALAMEDA FLAT SE
44	45	46	44 FOSTER COULEE NE 45 BARKER CANYON NW 46 BARKER CANYON NE

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ALAMEDA FLAT SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
ALAMEDA FLAT SE QUADRANGLE
SHEET NUMBER 30 OF 184

119°11'15" 119°07'30"
48°03'45" 48°00'00"
537 000mE 538 539 R. 29 E. 540 541
524 000mN 523 522 521 520 519 000mN
T. 30 N. T. 29 N.
53 25 53 23 53 22 53 21 53 20

Joins sheet 29 Alameda Flat SW

Joins sheet 31 Sanderson Creek SW

Joins sheet 45 Barker Canyon NW

Joins sheet 46 Barker Canyon NE

Joins sheet 47 Electric City NW

STRAHL CANYON

Wilson Butte

Wilson Lake

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

			14 ALAMEDA FLAT NW
14	15	16	15 ALAMEDA FLAT NE
			16 SANDERSON CREEK NW
29		31	29 ALAMEDA FLAT SW
			31 SANDERSON CREEK SW
45	46	47	45 BARKER CANYON NW
			46 BARKER CANYON NE
			47 ELECTRIC CITY NW

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ALAMEDA FLAT SE, WASHINGTON
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SHEET NUMBER 30 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
SANDERSON CREEK SW QUADRANGLE
SHEET NUMBER 31 OF 184

119°07′30″ — 119°03′45″ — 48°03′45″ — 48°00′00″

342000mE 343 344 345 346

R. 29 E. R. 30 E.

53 25 — 53 24 000mN — 53 23 — 53 22 — 53 21 — 53 20 — 53 19 000mN

T. 30 N. T. 29 N.

36 31 32 1 6 5 12 7 8 13 18 17 24 19 20

Smith Lake

Sanderson Creek

Joins sheet 30 Alameda Flat SE

Joins sheet 32 Sanderson Creek SE

Joins sheet 46 Barker Canyon NE

Joins sheet 47 Electric City NW

Joins sheet 48 Electric City NE

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North American Datum of 1983 (NAD83), GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

15	16	17
30		32
46	47	48

15 ALAMEDA FLAT NE
16 SANDERSON CREEK NW
17 SANDERSON CREEK NE
30 ALAMEDA FLAT SE
32 SANDERSON CREEK SE
46 BARKER CANYON NE
47 ELECTRIC CITY NW
48 ELECTRIC CITY NE

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SANDERSON CREEK SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 31 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
SANDERSON CREEK SE QUADRANGLE
SHEET NUMBER 32 OF 184

Joins sheet 16 Sanderson Creek NW

Joins sheet 17 Sanderson Creek NE

119° 03′ 45″ — 119° 00′ 00″ — 48° 03′ 45″ — 48° 00′ 00″

347 000m E — 348 — 349 — 350 — 351

R. 30 E.

53 24 000m N — 53 23 — 53 22 — 53 21 — 53 20 — 53 19 000m N

T. 30 N. — T. 29 N.

53 24 — 53 23 000m N — 53 22 — 53 21 — 53 20 — 53 19

Buckley Bar

RUFUS WOODS LAKE — OKANOGAN COUNTY — COLUMBIA RIVER

Moses Creek

Sanderson Creek

Joins sheet 31 Sanderson Creek SW

Joins sheet 33 Belvedere SW

Joins sheet 47 Electric City NW

Joins sheet 48 Electric City NE

Joins sheet 49 Grand Coulee Dam NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

16	17	
31		33
47	48	49

16 SANDERSON CREEK NW
17 SANDERSON CREEK NE
31 SANDERSON CREEK SW
33 BELVEDERE SW
47 ELECTRIC CITY NW
48 ELECTRIC CITY NE
49 GRAND COULEE DAM NW

INDEX TO ADJOINING 3.75 MAPS

SANDERSON CREEK SE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 32 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BELVEDERE SW QUADRANGLE
SHEET NUMBER 33 OF 184

Joins sheet 17 Sanderson Creek NE

119° 00′ 00″ — 351 000mE — 352 — 353 — 354 — 355 — 118° 56′15″

48° 03′ 45″

5324 — 5323 000mN — 5322 — 5321 — 5320 — 5319 — 5318 000mN

48° 00′ 00″

T. 29 N.

Joins sheet 32 Sanderson Creek SE

Joins sheet 48 Electric City NE

Joins sheet 49 Grand Coulee Dam NW

R. 30 E. R. 31 E.

OKANOGAN COUNTY
RUFUS WOODS LAKE
COLUMBIA RIVER
Sanderson Creek

1 2 7 11 12 13 14 17 18 19 23 24

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

17		
32		
48	49	

17 SANDERSON CREEK NE
32 SANDERSON CREEK SE
48 ELECTRIC CITY NE
49 GRAND COULEE DAM NW

INDEX TO ADJOINING 3.75 MAPS

BELVEDERE SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 33 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
AZWELL NE QUADRANGLE
SHEET NUMBER 34 OF 184

119°56'15" 119°52'30"

Joins sheet 18 Pateros SE

Joins sheet 19 Brewster SW

R. 24 E.

48°00'00"

47°56'15"

T. 29 N.

OKANOGAN COUNTY

COLUMBIA RIVER

LAKE PATEROS

458 222 232 262

Joins sheet 35 Wells Dam NW

Joins sheet 50 Azwell SE

Joins sheet 51 Wells Dam SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	18	19	18 PATEROS SE 19 BREWSTER SW
		35	35 WELLS DAM NW
	50	51	50 AZWELL SE 51 WELLS DAM SW

INDEX TO ADJOINING 3.75 MAPS

AZWELL NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 34 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WELLS DAM NW QUADRANGLE
SHEET NUMBER 35 OF 184

Joins sheet 19 Brewster SW

119°52′30″ — 119°48′45″ — 48°00′00″ — 47°56′15″

R. 24 E.

T. 28 E. — T. 29 E.

COLUMBIA RIVER
LAKE PATEROS
OKANOGAN COUNTY
LAKE PATEROS
OKANOGAN CO
COLUMBIA RIVER
CHELAN COUNTY
LAKE ENTIAT
WELLS DAM
114
Bonita Flats
The Horseshoe

Joins sheet 34 Azwell NE

Joins sheet 36 Wells Dam NE

Joins sheet 50 Azwell SE

Joins sheet 51 Wells Dam SW

Joins sheet 52 Wells Dam SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

18	19	20	18 PATEROS SE 19 BREWSTER SW 20 BREWSTER SE
34		36	34 AZWELL NE 36 WELLS DAM NE
50	51	52	50 AZWELL SE 51 WELLS DAM SW 52 WELLS DAM SE

INDEX TO ADJOINING 3.75 MAPS

WELLS DAM NW, WASHINGTON
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 19 Brewster SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

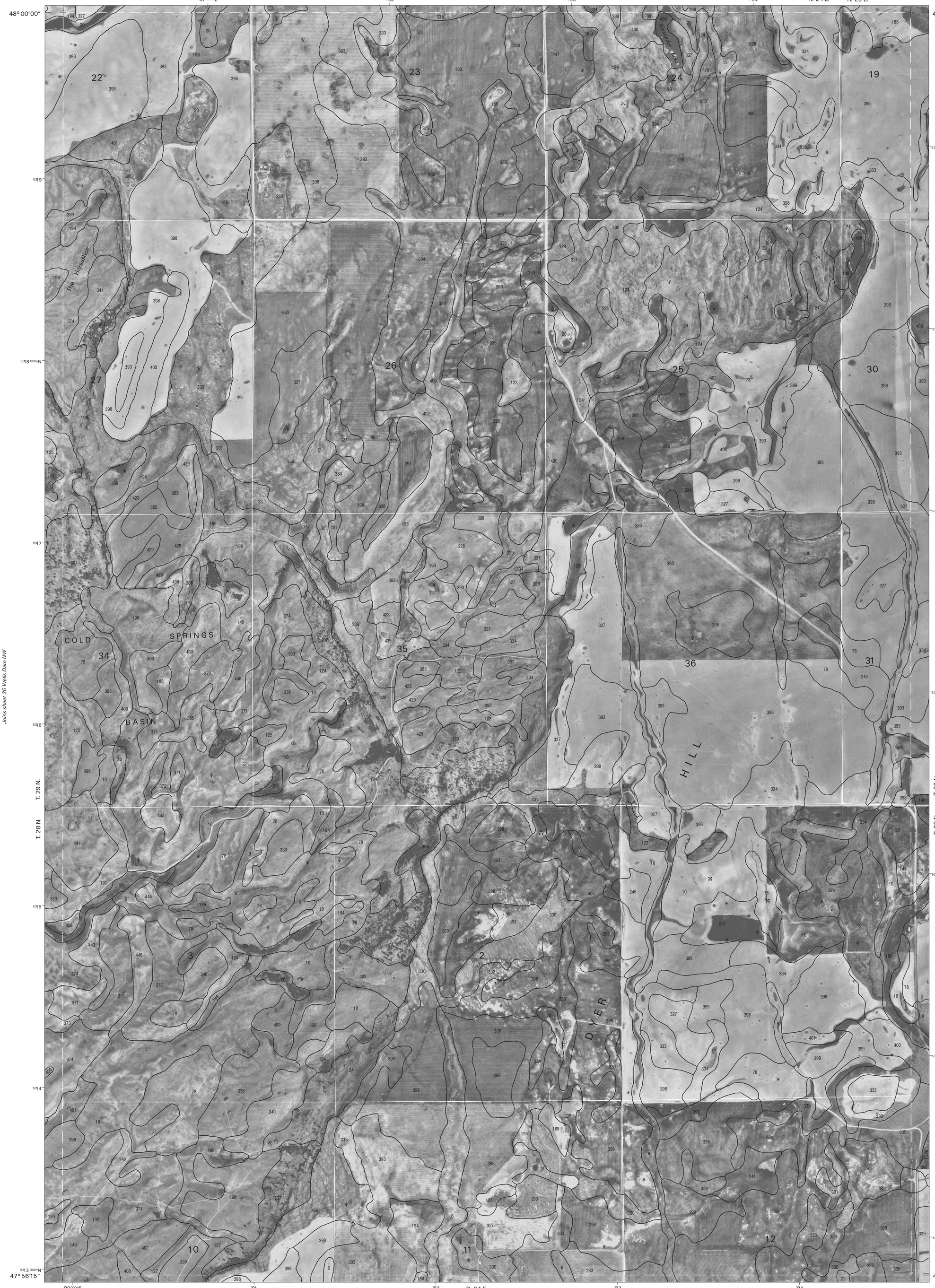
Joins sheet 20 Brewster SE

DOUGLAS COUNTY, WASHINGTON
WELLS DAM NE QUADRANGLE
SHEET NUMBER 36 OF 184

Joins sheet 21 Bridgeport SW

119° 48′ 45″ — 119° 45′ 00″ — 48° 00′ 00″ — 47° 56′ 15″

R. 24 E. — R. 25 E.



Joins sheet 35 Wells Dam NW

Joins sheet 37 Chief Joseph Dam NW

T. 29 N. — T. 28 N.

Joins sheet 51 Wells Dam SW

Joins sheet 52 Wells Dam SE

Joins sheet 53 Chief Joseph Dam SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

19	20	21	19 BREWSTER SW 20 BREWSTER SE 21 BRIDGEPORT SW
35		37	35 WELLS DAM NW 37 CHIEF JOSEPH DAM NW
51	52	53	51 WELLS DAM SW 52 WELLS DAM SE 53 CHIEF JOSEPH DAM SW

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WELLS DAM NE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 36 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

119° 45′ 00″ — 119° 41′ 15″ — 48° 00′ 00″ — 47° 56′ 15″

R. 24 E. — R. 25 E.



Joins sheet 36 Wells Dam NE

Joins sheet 38 Chief Joseph Dam NE

Joins sheet 53 Chief Joseph Dam SW

Joins sheet 52 Wells Dam SE

Joins sheet 54 Chief Joseph Dam SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

20	21	22
36		38
52	53	54

INDEX TO ADJOINING 3.75 MAPS

20 BREWSTER SE
21 BRIDGEPORT SW
22 BRIDGEPORT SE
36 WELLS DAM NE
38 CHIEF JOSEPH DAM NE
52 WELLS DAM SE
53 CHIEF JOSEPH DAM SW
54 CHIEF JOSEPH DAM SE

CHIEF JOSEPH DAM NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 37 OF 184

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

21	22	23	21 BRIDGEPORT SW 22 BRIDGEPORT SE 23 BRIDGEPORT POINT SW
37		39	37 CHIEF JOSEPH DAM NW 39 COLEMAN HILL NW
53	54	55	53 CHIEF JOSEPH DAM SW 54 CHIEF JOSEPH DAM SE 55 COLEMAN HILL SW

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CHIEF JOSEPH DAM NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
COLEMAN HILL NW QUADRANGLE
SHEET NUMBER 39 OF 184

119° 37′ 30″ — 119° 33′ 45″ — 48° 00′ 00″ — 47° 56′ 15″

R. 25 E. — R. 26 E.

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

22	23	24
38		40
54	55	56

22 BRIDGEPORT SE
23 BRIDGEPORT POINT SW
24 BRIDGEPORT POINT SE
38 CHIEF JOSEPH DAM NE
40 COLEMAN HILL NE
54 CHIEF JOSEPH DAM SE
55 COLEMAN HILL SW
56 COLEMAN HILL SE

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COLEMAN HILL NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 39 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
COLEMAN HILL NE QUADRANGLE
SHEET NUMBER 40 OF 184

119° 33′ 45″ — 309 000m E — 310 — 311 — R. 26 E. — 312 — 313 — 119° 30′ 00″

48° 00′ 00″ — 53 19 — 53 18 000m N — 53 17 — 53 16 — 53 15 — 53 14 — 53 13 000m N — 47° 56′ 15″

T. 29 N. — T. 28 N.

Joins sheet 39 Coleman Hill NW

Joins sheet 41 Leahy NW

Joins sheet 65 Coleman Hill SW

Joins sheet 56 Coleman Hill SE

Joins sheet 57 Leahy SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

23	24	25	23 BRIDGEPORT POINT SW 24 BRIDGEPORT POINT SE 25 STUBBLEFIELD POINT SW
39		41	39 COLEMAN HILL NW 41 LEAHY NW
55	56	57	55 COLEMAN HILL SW 56 COLEMAN HILL SE 57 LEAHY SW

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COLEMAN HILL NE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 40 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 24 Bridgeport Point SE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 25 Stubblefield Point SW

DOUGLAS COUNTY, WASHINGTON
LEAHY NW QUADRANGLE
SHEET NUMBER 41 OF 184

Joins sheet 26 Stubblefield Point SE

119° 30′ 00″ — R. 26 E. — 314 000mE — R. 27 E. — 315 — 316 — 317 — 318 — 119° 26′ 15″

48° 00′ 00″ — 53 19 — 53 18 — 53 17 — 53 16 — 53 15 — 53 14 — 53 13 — 53 12 — 47° 56′ 15″

5318 000mN — 5317 000mN — 5312 000mN

T. 29 N. — T. 28 N.

Joins sheet 40 Coleman Hill NE

Joins sheet 42 Leahy NE

Joins sheet 56 Coleman Hill SE

Joins sheet 57 Leahy SW

Joins sheet 58 Leahy SE

Tinker Lake

East Foster Creek

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0,5 0 0,5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0,5 0 0,5 KILOMETERS

24	25	26	24 BRIDGEPORT POINT SE 25 STUBBLEFIELD POINT SW 26 STUBBLEFIELD POINT SE
40		42	40 COLEMAN HILL NE 42 LEAHY NE
56	57	58	56 COLEMAN HILL SE 57 LEAHY SW 58 LEAHY SE

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LEAHY NW, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
LEAHY NE QUADRANGLE
SHEET NUMBER 42 OF 184

119° 26′15″ — 119° 22′30″ — 48° 00′00″ — 47° 56′15″ — R. 27 E.

18 000mE · 19 · 20 · 21 · 22

53 7 000mN · 53 18 · 53 17 · 53 16 · 53 15 · 53 14 · 53 13 · 53 12 000mN

T. 29 N. · T. 28 N.

Ragged Butte

Joins sheet 41 Leahy NW

Joins sheet 43 Foster Coulee NW

Joins sheet 57 Leahy SW

Joins sheet 58 Leahy SE

Joins sheet 59 Foster Coulee SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

25	26	27	25 STUBBLEFIELD POINT SW 26 STUBBLEFIELD POINT SE 27 TREFRY CANYON SW
41		43	41 LEAHY NW 43 FOSTER COULEE NW
57	58	59	57 LEAHY SW 58 LEAHY SE 59 FOSTER COULEE SW

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LEAHY NE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
FOSTER COULEE NW QUADRANGLE
SHEET NUMBER 43 OF 184

119°22′30″ 119°18′45″ 48°00′00″ 47°56′15″

R. 27 E. R. 28 E.

T. 29 N. T. 28 N.

Buck Lake

Joins sheet 42 Leahy NE
Joins sheet 44 Foster Coulee NE
Joins sheet 58 Leahy SE
Joins sheet 59 Foster Coulee SW
Joins sheet 60 Foster Coulee SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

26	27	28	26	STUBBLEFIELD POINT SE
			27	TREFRY CANYON SW
			28	TREFRY CANYON SE
42		44	42	LEAHY NE
			44	FOSTER COULEE NE
			58	LEAHY SE
58	59	60	59	FOSTER COULEE SW
			60	FOSTER COULEE SE

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FOSTER COULEE NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
FOSTER COULEE NE QUADRANGLE
SHEET NUMBER 44 OF 184

119°18′45″ — 119°15′00″ — 48°00′00″ — 47°56′15″

328 000m E — 329 — R. 28 E. — 330 — 331 — 332

5318 — 5317 000mN — 5316 — 5315 — 5314 — 5313 — 5312 000mN

T. 29 N. — T. 28 N.

Joins sheet 43 Foster Coulee NW

Joins sheet 45 Barker Canyon NW

Joins sheet 59 Foster Coulee SW

Joins sheet 60 Foster Coulee SE

Joins sheet 61 Barker Canyon SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

27	28	29	27	TREFRY CANYON SW
			28	TREFRY CANYON SE
			29	ALAMEDA FLAT SW
43		45	43	FOSTER COULEE NW
			45	BARKER CANYON NW
			59	FOSTER COULEE SW
59	60	61	60	FOSTER COULEE SE
			61	BARKER CANYON SW

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FOSTER COULEE NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 44 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

119°15′00″ — 119°11′15″

Joins sheet 29 Alameda Flat SW

R. 28 E. — R. 29 E.

48°00′00″

47°56′15″

T. 29 N.

T. 28 N.

Joins sheet 44 Foster Coulee NE

Joins sheet 46 Barker Canyon NE

Joins sheet 60 Foster Coulee SE

Joins sheet 61 Barker Canyon SW

Joins sheet 62 Barker Canyon SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

28	29	30	28	TREFRY CANYON SE
			29	ALAMEDA FLAT SW
			30	ALAMEDA FLAT SE
44		46	44	FOSTER COULEE NE
			46	BARKER CANYON NE
			60	FOSTER COULEE SE
60	61	62	61	BARKER CANYON SW
			62	BARKER CANYON SE

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BARKER CANYON NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 45 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
BARKER CANYON NE QUADRANGLE
SHEET NUMBER 46 OF 184

119°11'15" 119°07'30" 48°00'00" 47°56'15"

R. 29 E.

337 000mE 338 339 340 341

5318 5317 000mN 5316 5315 5314 5313 5312 000mN

T. 29 N. T. 28 N.

Wilson Lake

21 22 23 27 26 28 33 34 35 4 3 9 10 11 2

GRANT COUNTY

Barker Canyon

Joins sheet 45 Barker Canyon NW
Joins sheet 47 Electric City NW
Joins sheet 61 Barker Canyon SW
Joins sheet 62 Barker Canyon SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

29	30	31	29 ALAMEDA FLAT SW 30 ALAMEDA FLAT SE 31 SANDERSON CREEK SW
45		47	45 BARKER CANYON NW 47 ELECTRIC CITY NW
61	62		61 BARKER CANYON SW 62 BARKER CANYON SE

INDEX TO ADJOINING 3.75 MAPS

BARKER CANYON NE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 46 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ELECTRIC CITY NW QUADRANGLE
SHEET NUMBER 47 OF 184

119° 07′ 30″ — 119° 03′ 45″ — 47° 56′ 15″ — 48° 00′ 00″

342 000m E — 343 — 344 — 345 — 346

R. 29 E. — R. 30 E.

53 18 — 53 17 000mN — 53 16 — 53 15 — 53 14 — 53 13 — 53 12 000mN

T. 29 N. — T. 28 N.

Joins sheet 46 Barker Canyon NE

Joins sheet 48 Electric City NE

Joins sheet 62 Barker Canyon SE

GRANT COUNTY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

30	31	32	30 ALAMEDA FLAT SE 31 SANDERSON CREEK SW 32 SANDERSON CREEK SE
46		48	46 BARKER CANYON NE 48 ELECTRIC CITY NE
62			62 BARKER CANYON SE

INDEX TO ADJOINING 3.75 MAPS

ELECTRIC CITY NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 47 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ELECTRIC CITY NE QUADRANGLE
SHEET NUMBER 48 OF 184

Joins sheet 31 Sanderson Creek SW

Joins sheet 32 Sanderson Creek SE

Joins sheet 33 Belvedere SW

Joins sheet 47 Electric City NW

Joins sheet 49 Grand Coulee Dam NW

119° 03′ 45″ — 119° 00′ 00″

48° 00′ 00″ — 47° 56′ 15″

R. 30 E.

T. 29 N.

Wallace

Canyon Creek

Fiddle

GRANT COUNTY

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

31	32	33	31 SANDERSON CREEK SW 32 SANDERSON CREEK SE 33 BELVEDERE SW
47		49	47 ELECTRIC CITY NW 49 GRAND COULEE DAM NW

INDEX TO ADJOINING 3.75 MAPS

ELECTRIC CITY NE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
GRAND COULEE DAM NW QUADRANGLE
SHEET NUMBER 49 OF 184

Joins sheet 32 Sanderson Creek SE

Joins sheet 33 Belvedere SW

Joins sheet 48 Electric City NE

119° 00′ 00″ — 118° 56′ 15″ — 48° 00′ 00″ — 47° 56′ 15″

R. 30 E. — R. 31 E.

T. 29 N. — T. 28 N.

351 000mE — 352 — 353 — 354 — 355

5318 — 5317 — 5316 — 5315 — 5314 — 5313 — 5312 — 5311 000mN

5317 — 5316 000mN — 5315 — 5314 — 5313 — 5312 — 5311 000mN

RUFUS WOODS LAKE — OKANOGAN COUNTY — COLUMBIA RIVER — Washington — Flats — Fiddle Creek — CROWN POINT STATE PARK — Coulee Dam — GRANT COUNTY

19 — 23 — 24 — 25 — 26 — 30 — 35 — 36

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0,5 0 0,5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0,5 0 0,5 KILOMETERS

32	33		32 SANDERSON CREEK SE 33 BELVEDERE SW
48			48 ELECTRIC CITY NE

INDEX TO ADJOINING 3.75 MAPS

GRAND COULEE DAM NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
AZWELL SE QUADRANGLE
SHEET NUMBER 50 OF 184

Joins sheet 34 Azwell NE

Joins sheet 35 Wells Dam NW

119°56'15" — 119°52'30"

R. 23 E. — R. 24 E.

47°56'15"

47°52'30"

281 000mE — 282 — 283 — 284 — 285

5313 — 5312 000mN — 5311 — 5310 — 5309 — 5308 — 5307 000mN

5313 — 5311 — 5310 — 5309 — 5308 — 5307 000mN

T. 28 N.

CHELAN COUNTY

COLUMBIA RIVER

LAKE ENTIAT

13 — 18 — 23 — 24 — 19 — 26 — 25 — 30 — 35 — 36 — 31

Joins sheet 51 Wells Dam SW

Joins sheet 63 Chelan Falls NW

Joins sheet 64 Chelan Falls NE

Joins sheet 65 Mud Spring NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	34	35	34 AZWELL NE 35 WELLS DAM NW
		51	51 WELLS DAM SW
63	64	65	63 CHELAN FALLS NW 64 CHELAN FALLS NE 65 MUD SPRING NW

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AZWELL SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 34 Azwell NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 35 Wells Dam NW

DOUGLAS COUNTY, WASHINGTON
WELLS DAM SW QUADRANGLE
SHEET NUMBER 51 OF 184

Joins sheet 36 Wells Dam NE

119°52′30″ — 119°48′45″ — 47°56′15″ — 47°52′30″

R. 24 E.

T. 28 N.

COLUMBIA LAKE — CHELAN COUNTY — ENTIAT RIVER

Skeleton Canyon

Windsor Hill

Long Draw

Joins sheet 50 Azwell SE

Joins sheet 52 Wells Dam SE

Joins sheet 64 Chelan Falls NE

Joins sheet 65 Mud Spring NW

Joins sheet 66 Mud Spring NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

34	35	36	34	AZWELL NE
			35	WELLS DAM NW
			36	WELLS DAM NE
50		52	50	AZWELL SE
			52	WELLS DAM SE
			64	CHELAN FALLS NE
64	65	66	65	MUD SPRING NW
			66	MUD SPRING NE

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WELLS DAM SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
WELLS DAM SE QUADRANGLE
SHEET NUMBER 52 OF 184

119° 48′ 45″ — 119° 45′ 00″ — 47° 56′ 15″ — 47° 52′ 30″

R. 24 E.

T. 28 N.

Landingham Hill

SOURDOUGH FLATS

BOULDER PARK

DYER HILL

Cornehl Lake

West Foster Creek

Joins sheet 51 Wells Dam SW

Joins sheet 53 Chief Joseph Dam SW

Joins sheet 65 Mud Spring NW

Joins sheet 66 Mud Spring NE

Joins sheet 67 Mansfield NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

35	36	37	35 WELLS DAM NW 36 WELLS DAM NE 37 CHIEF JOSEPH DAM NW
51		53	51 WELLS DAM SW 53 CHIEF JOSEPH DAM SW
65	66	67	65 MUD SPRING NW 66 MUD SPRING NE 67 MANSFIELD NW

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WELLS DAM SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
CHIEF JOSEPH DAM SW QUADRANGLE
SHEET NUMBER 53 OF 184

119° 45′ 00″ — R. 24 E. — R. 25 E. — 295 000m E — 296 — 297 — 298 — 299 — 119° 41′ 15″

47° 56′ 15″ — 53 12 — 53 11 000m N — 53 10 — 53 09 — 53 08 — 53 07 — 53 06 000m N — 47° 52′ 30″

T. 28 N.

Draw — Five — DYER HILL — SOURDOUGH FLATS — West — Foster — Creek

7 8 9 10 16 17 18 19 20 21 28 29 30 31 32 33

Joins sheet 52 Wells Dam SE

Joins sheet 54 Chief Joseph Dam SE

Joins sheet 67 Mansfield NW

Joins sheet 66 Mud Spring NE

Joins sheet 68 Mansfield NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

36	37	38	36	WELLS DAM NE
			37	CHIEF JOSEPH DAM NW
			38	CHIEF JOSEPH DAM NE
52		54	52	WELLS DAM SE
			54	CHIEF JOSEPH DAM SE
			66	MUD SPRING NE
66	67	68	67	MANSFIELD NW
			68	MANSFIELD NE

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CHIEF JOSEPH DAM SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
CHIEF JOSEPH DAM SE QUADRANGLE
SHEET NUMBER 54 OF 184

119° 41′15″ — 300 000m E — 301 — R. 25 E. — 302 — 303 — 304 — 119° 37′30″

47° 56′15″ — 53 12 — T. 28 N. — 53 11 000m N — 53 10 — 53 09 — 53 08 — 53 07 — 53 06 000m N — 47° 52′30″

Joins sheet 53 Chief Joseph Dam SW

Joins sheet 55 Coleman Hill SW

Joins sheet 67 Mansfield NW

Joins sheet 68 Mansfield NE

Joins sheet 69 Pierson Hills NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

37	38	39	37	CHIEF JOSEPH DAM NW
			38	CHIEF JOSEPH DAM NE
			39	COLEMAN HILL NW
53		55	53	CHIEF JOSEPH DAM SW
			55	COLEMAN HILL SW
			67	MANSFIELD NW
67	68	69	68	MANSFIELD NE
			69	PIERSOL HILLS NW

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CHIEF JOSEPH DAM SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
COLEMAN HILL SW QUADRANGLE
SHEET NUMBER 55 OF 184

119°37′30″ — 119°33′45″ — 47°56′15″ — 47°52′30″

R. 25 E. — R. 26 E.

304 000mE — 305 — 306 — 307 — 308

5312 — 5311 000mN — 5310 — 5309 — 5308 — 5307 — 5306 000mN

T. 28 N.

Joins sheet 54 Chief Joseph Dam SE

Joins sheet 56 Coleman Hill SE

Joins sheet 68 Mansfield NE

Joins sheet 69 Piersol Hills NW

Joins sheet 70 Piersol Hills NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

38	39	40	38	CHIEF JOSEPH DAM NE
			39	COLEMAN HILL NW
			40	COLEMAN HILL NE
54		56	54	CHIEF JOSEPH DAM SE
			56	COLEMAN HILL SE
			68	MANSFIELD NE
68	69	70	69	PIERSOL HILLS NW
			70	PIERSOL HILLS NE

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COLEMAN HILL SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 39 Coleman Hill NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 40 Coleman Hill NE

DOUGLAS COUNTY, WASHINGTON
COLEMAN HILL SE QUADRANGLE
SHEET NUMBER 56 OF 184

Joins sheet 41 Leahy NW

119°33′45″ — 119°30′00″ — 47°56′15″ — 47°52′30″

R. 26 E.

T. 28 N.

Joins sheet 55 Coleman Hill SW

Joins sheet 57 Leahy SW

Joins sheet 69 Piersol Hills NW

Joins sheet 70 Piersol Hills NE

Joins sheet 71 Barnes Butte NW

Bell Butte

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

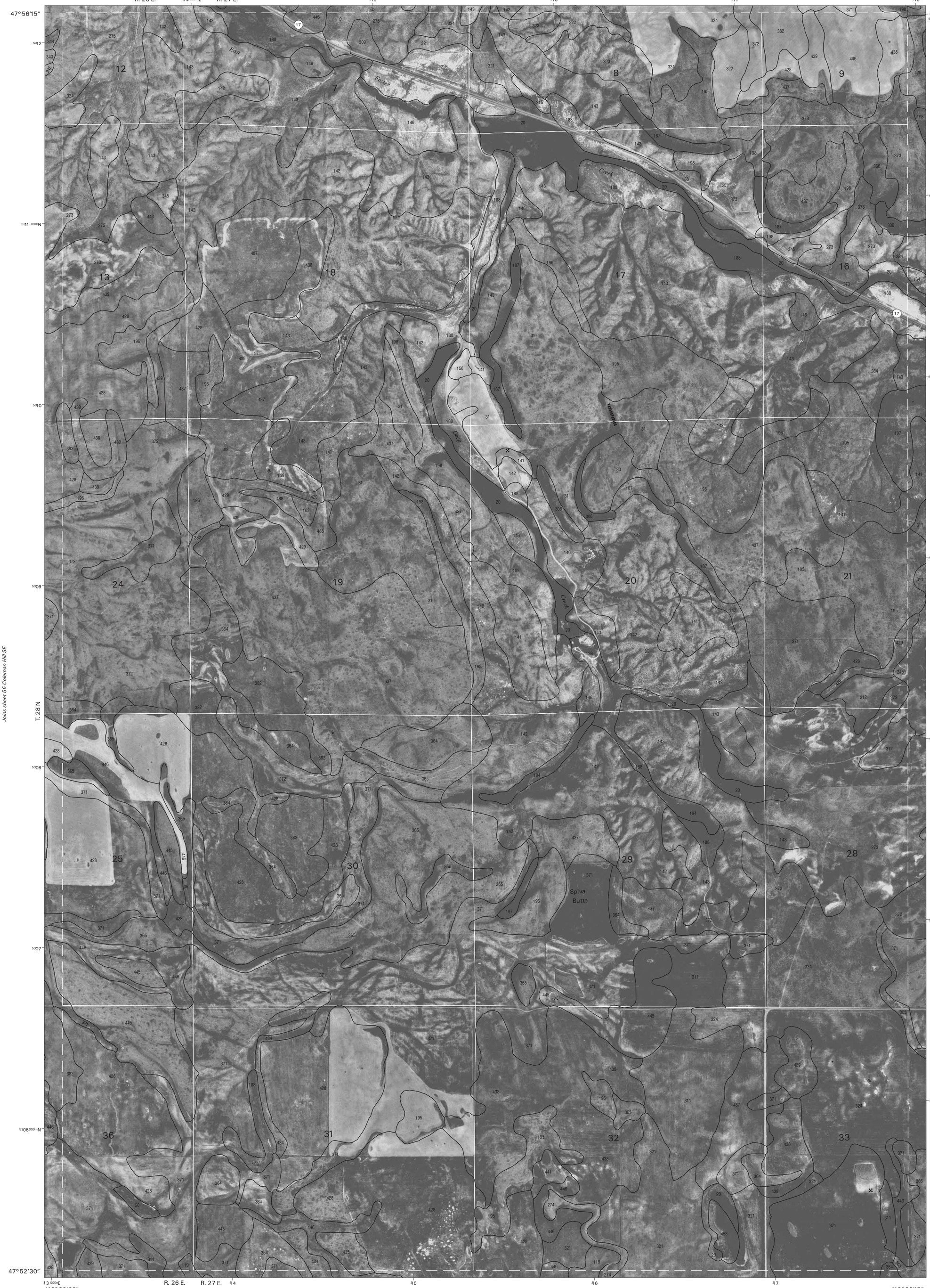
39	40	41	39	COLEMAN HILL NW
			40	COLEMAN HILL NE
			41	LEAHY NW
55		57	55	COLEMAN HILL SW
			57	LEAHY SW
			69	PIERSOL HILLS NW
69	70	71	70	PIERSOL HILLS NE
			71	BARNES BUTTE NW

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COLEMAN HILL SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



Joins sheet 56 Coleman Hill SE

Joins sheet 58 Leahy SE

Joins sheet 70 Piersol Hills NE

Joins sheet 71 Barnes Butte NW

Joins sheet 72 Barnes Butte NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

40	41	42	40	COLEMAN HILL NE
			41	LEAHY NW
			42	LEAHY NE
56		58	56	COLEMAN HILL SE
			58	LEAHY SE
70	71	72	70	PIERSOL HILLS NE
			71	BARNES BUTTE NW
			72	BARNES BUTTE NE

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LEAHY SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
LEAHY SE QUADRANGLE
SHEET NUMBER 58 OF 184

119° 26′15″ — 119° 22′30″ — 47° 56′15″ — 47° 52′30″

R. 27 E.

T. 28 N.

Leahy — Foster — Foster Creek — Reaves Butte

Joins sheet 57 Leahy SW
Joins sheet 59 Foster Coulee SW
Joins sheet 71 Barnes Butte NW
Joins sheet 72 Barnes Butte NE
Joins sheet 73 Sims Corner NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

41	42	43	41 LEAHY NW 42 LEAHY NE 43 FOSTER COULEE NW
57		59	57 LEAHY SW 59 FOSTER COULEE SW
71	72	73	71 BARNES BUTTE NW 72 BARNES BUTTE NE 73 SIMS CORNER NW

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LEAHY SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 42 Leahy NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
FOSTER COULEE SW QUADRANGLE
SHEET NUMBER 59 OF 184

Joins sheet 44 Foster Coulee NE

Joins sheet 43 Foster Coulee NW

119°22′30″ — 119°18′45″ — 47°56′15″ — 47°52′30″

R. 27 E. — R. 28 E.

T. 28 N.

Joins sheet 58 Leahy SE

Joins sheet 60 Foster Coulee SE

Joins sheet 72 Barnes Butte NE

Joins sheet 73 Sims Corner NW

Joins sheet 74 Sims Corner NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

42	43	44	42 LEAHY NE 43 FOSTER COULEE NW 44 FOSTER COULEE NE
58		60	58 LEAHY SE 60 FOSTER COULEE SE
72	73	74	72 BARNES BUTTE NE 73 SIMS CORNER NW 74 SIMS CORNER NE

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FOSTER COULEE SW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
FOSTER COULEE SE QUADRANGLE
SHEET NUMBER 60 OF 184

119°18′45″ — 119°15′00″ — 47°56′15″ — 47°52′30″

R. 28 E.

T. 28 N.

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

43	44	45	43	FOSTER COULEE NW
			44	FOSTER COULEE NE
			45	BARKER CANYON NW
59		61	59	FOSTER COULEE SW
			61	BARKER CANYON SW
			73	SIMS CORNER NW
73	74	75	74	SIMS CORNER NE
			75	STEAMBOAT ROCK WEST NW

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FOSTER COULEE SE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 60 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BARKER CANYON SW QUADRANGLE
SHEET NUMBER 61 OF 184

119°15′00″ — 119°11′15″ — 47°56′15″ — 47°52′30″

R. 28 E. — R. 29 E.

T. 28 N.

GRANT COUNTY

FOSTER COULEE

Joins sheet 60 Foster Coulee SE

Joins sheet 62 Barker Canyon SE

Joins sheet 74 Sims Corner NE

Joins sheet 75 Steamboat Rock West NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

44	45	46	44 FOSTER COULEE NE 45 BARKER CANYON NW 46 BARKER CANYON NE
60		62	60 FOSTER COULEE SE 62 BARKER CANYON SE
74	75		74 SIMS CORNER NE 75 STEAMBOAT ROCK WEST NW

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BARKER CANYON SW, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BARKER CANYON SE QUADRANGLE
SHEET NUMBER 62 OF 184

119°11'15" 119°07'30" 47°56'15" 47°52'30"

R. 29 E.

337 000mE 338 339 340 341

53 11 53 10 000mN 53 09 53 08 53 07 53 06 53 05 000mN

T. 28 N.

9 10 11 16 15 14 21 22

CANYON

BARKER

Barker Canyon Lake

Cache Butte

BANKS LAKE

GRANT COUNTY

Joins sheet 61 Barker Canyon SW

Joins sheet 75 Steamboat Rock West NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

45	46	47	45 BARKER CANYON NW 46 BARKER CANYON NE 47 ELECTRIC CITY NW
61			61 BARKER CANYON SW
75			75 STEAMBOAT ROCK WEST NW

INDEX TO ADJOINING 3.75 MAPS

BARKER CANYON SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
CHELAN FALLS NW QUADRANGLE
SHEET NUMBER 63 OF 184

Joins sheet 50 Azwell SE

120° 00′ 00″ — 119° 56′ 15″ — 47° 52′ 30″ — 47° 48′ 45″

276 000m E — 277 — 278 — 279 — R. 23 E. — 280

5305 000m N — 5306 — 5304 — 5303 — 5302 — 5301 — 5300 000m N

T. 27 N.

CHELAN COUNTY
COLUMBIA RIVER
LAKE ENTIAT
Beebe
Canal
Creek

9 10 16 15 20 21 22 29 28 27

Joins sheet 64 Chelan Falls NE

Joins sheet 79 Chelan SE

Joins sheet 80 Chelan Falls SW

Joins sheet 81 Chelan Falls SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

		50	50 AZWELL SE
		64	64 CHELAN FALLS NE
79	80	81	79 CHELAN SE 80 CHELAN FALLS SW 81 CHELAN FALLS SE

CHELAN FALLS NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 63 OF 184

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DOUGLAS COUNTY, WASHINGTON
CHELAN FALLS NE QUADRANGLE
SHEET NUMBER 64 OF 184

119°56'15" 119°52'30"

Joins sheet 50 Azwell SE

Joins sheet 51 Wells Dam SW

Joins sheet 63 Chelan Falls NW

Joins sheet 65 Mud Spring NW

Joins sheet 80 Chelan Falls SW

Joins sheet 82 Mud Spring SW

Joins sheet 81 Chelan Falls SE

R. 23 E. R. 24 E.

T. 28 N.
T. 27 N.

47°52'30"
47°48'45"

281 000mE 282 283 284 285

5306
5305 000mN
5304
5303
5302
5301
5300 000mN

53 06
53 05
53 04
53 03
53 02
53 01
53 00 000mN

CHELAN COUNTY
COLUMBIA RIVER
LAKE ENTIAT
Corral Creek
McNeil Canyon

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	50	51	50 AZWELL SE
			51 WELLS DAM SW
63		65	63 CHELAN FALLS NW
			65 MUD SPRING NW
80	81	82	80 CHELAN FALLS SW
			81 CHELAN FALLS SE
			82 MUD SPRING SW

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CHELAN FALLS NE, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
MUD SPRING NW QUADRANGLE
SHEET NUMBER 65 OF 184

119°52′30″ — 285 000m E — 286 — 287 — R. 24 E. — 288 — 289 — 119°48′45″

47°52′30″ — T. 28 N. / T. 27 N. — 53 06 — 53 05 000m N — 53 04 — 53 03 — 53 02 — 53 01 — 53 00 000m N — 47°48′45″

Joins sheet 64 Chelan Falls NE

Joins sheet 66 Mud Spring NE

Joins sheet 81 Chelan Falls SE

Joins sheet 82 Mud Spring SW

Joins sheet 83 Mud Spring SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

50	51	52	50 AZWELL SE 51 WELLS DAM SW 52 WELLS DAM SE
64		66	64 CHELAN FALLS NE 66 MUD SPRING NE
81	82	83	81 CHELAN FALLS SE 82 MUD SPRING SW 83 MUD SPRING SE

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MUD SPRING NW, WASHINGTON

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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
MUD SPRING NE QUADRANGLE
SHEET NUMBER 66 OF 184

Joins sheet 51 Wells Dam SW

Joins sheet 52 Wells Dam SE

Joins sheet 53 Chief Joseph Dam SW

119° 48′ 45″ — 119° 45′ 00″

47° 52′ 30″ — 47° 48′ 45″

290 000m E — 291 — 292 — R. 24 E. — 293 — 294

T. 28 N. — T. 27 N.

53 06 — 53 05 — 53 04 — 53 03 — 53 02 — 53 01 — 53 00

5305 000m N — 5304 000m N — 5300 000m N — 5299 000m N

BOULDER PARK

Creek

Foster

West

Joins sheet 65 Mud Spring NW

Joins sheet 67 Mansfield NW

Joins sheet 82 Mud Spring SW

Joins sheet 83 Mud Spring SE

Joins sheet 84 Mansfield SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

51	52	53	51 WELLS DAM SW 52 WELLS DAM SE 53 CHIEF JOSEPH DAM SW
65		67	65 MUD SPRING NW 67 MANSFIELD NW
82	83	84	82 MUD SPRING SW 83 MUD SPRING SE 84 MANSFIELD SW

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DOUGLAS COUNTY, WASHINGTON
MANSFIELD NW QUADRANGLE
SHEET NUMBER 67 OF 184

Joins sheet 52 Wells Dam SE

Joins sheet 53 Chief Joseph Dam SW

Joins sheet 54 Chief Joseph Dam SE

119° 45′ 00″ — R. 24 E. — R. 25 E. — 295 000m E — 296 — 297 — 298 — 299 — 119° 41′ 15″

47° 52′ 30″ — T. 28 N. — T. 27 N.

53 05

53 04 000m N

53 03

53 02

53 01

53 00

47° 48′ 45″

Joins sheet 66 Mud Spring NE

Joins sheet 68 Mansfield NE

Joins sheet 83 Mud Spring SE

Joins sheet 84 Mansfield SW

Joins sheet 85 Mansfield SE

Lone Butte

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

52	53	54
66		68
83	84	85

52 WELLS DAM SE
53 CHIEF JOSEPH DAM SW
54 CHIEF JOSEPH DAM SE
66 MUD SPRING NE
68 MANSFIELD NE
83 MUD SPRING SE
84 MANSFIELD SW
85 MANSFIELD SE

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DOUGLAS COUNTY, WASHINGTON
MANSFIELD NE QUADRANGLE
SHEET NUMBER 68 OF 184

119° 41′15″ — 299 000m E — 300 — 301 — R. 25 E. — 302 — 303 — 119° 37′30″

47° 52′30″ — T. 28 N. — T. 27 N. — 53 05 — 53 04 000m N — 53 03 — 53 02 — 53 01 — 53 00 — 52 99 000m N — 47° 48′45″

Joins sheet 67 Mansfield NW

Joins sheet 69 Piersol Hills NW

Joins sheet 84 Mansfield SW

Joins sheet 85 Mansfield SE

Joins sheet 86 Piersol Hills SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

53	54	55	53 CHIEF JOSEPH DAM SW 54 CHIEF JOSEPH DAM SE 55 COLEMAN HILL SW
67		69	67 MANSFIELD NW 69 PIERSOL HILLS NW
84	85	86	84 MANSFIELD SW 85 MANSFIELD SE 86 PIERSOL HILLS SW

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DOUGLAS COUNTY, WASHINGTON
PIERSOL HILLS NW QUADRANGLE
SHEET NUMBER 69 OF 184

Joins sheet 54 Chief Joseph Dam SE

Joins sheet 55 Coleman Hill SW

Joins sheet 56 Coleman Hill SE

119°37′30″ — 119°33′45″ — 47°52′30″ — 47°48′45″

R. 25 E. — R. 26 E. — T. 28 N. — T. 27 N.

304 000m E — 305 — 306 — 307 — 308

5304 000m N — 5303 — 5302 — 5301 — 5300 — 5299 000m N

5305 — 5303 — 5302 — 5301 — 5300 — 5299 000m N

Joins sheet 68 Mansfield NE

Joins sheet 70 Piersol Hills NE

Joins sheet 85 Mansfield SE

Joins sheet 86 Piersol Hills SW

Joins sheet 87 Piersol Hills SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

54	55	56	54 CHIEF JOSEPH DAM SE 55 COLEMAN HILL SW 56 COLEMAN HILL SE
68		70	68 MANSFIELD NE 70 PIERSOL HILLS NE
85	86	87	85 MANSFIELD SE 86 PIERSOL HILLS SW 87 PIERSOL HILLS SE

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PIERSOL HILLS NW, WASHINGTON

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
PIERSOL HILLS NE QUADRANGLE
SHEET NUMBER 70 OF 184

Joins sheet 55 Coleman Hill SW

Joins sheet 56 Coleman Hill SE

Joins sheet 57 Leahy SW

Joins sheet 69 Piersol Hills NW

Joins sheet 71 Barnes Butte NW

Joins sheet 86 Piersol Hills SW

Joins sheet 87 Piersol Hills SE

Joins sheet 88 Barnes Butte SW

119° 33′ 45″ — 119° 30′ 00″ — 47° 52′ 30″ — 47° 48′ 45″

R. 26 E.

T. 28 N. — T. 27 N.

309 000m E — 310 — 311 — 312 — 313

5305 — 5304 000m N — 5303 — 5302 — 5301 — 5300 — 5299 000m N

5305 — 5303 — 5302 — 5301 — 5300

Sections: 33, 34, 35, 36; 4, 3, 2, 1; 9, 10, 11, 12; 16, 15, 14, 13; 21, 22, 23, 24; 28, 27, 26, 25

Hook Hills

Wheeler Hills

Piersol Hills

Yeager Rock

FAIRVIEW ROAD

172

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

55	56	57	55 COLEMAN HILL SW 56 COLEMAN HILL SE 57 LEAHY SW
69		71	69 PIERSOL HILLS NW 71 BARNES BUTTE NW
86	87	88	86 PIERSOL HILLS SW 87 PIERSOL HILLS SE 88 BARNES BUTTE SW

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PIERSOL HILLS NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 70 OF 184

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Joins sheet 56 Coleman Hill SE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 57 Leahy SW

DOUGLAS COUNTY, WASHINGTON
BARNES BUTTE NW QUADRANGLE
SHEET NUMBER 71 OF 184

Joins sheet 58 Leahy SE

119° 30′ 00″ — 119° 26′ 15″ — 47° 52′ 30″ — 47° 48′ 45″

313 000mE — 314 — 315 — 316 — 317

R. 26 E. — R. 27 E.

T. 28 N. — T. 27 N.

5305 — 5304 000mN — 5303 — 5302 — 5301 — 5300 — 5299 000mN

53 05 — 53 04 000mN — 53 03 — 53 02 — 53 01 — 53 00 — 52 99 000mN

Joins sheet 70 Piersol Hills NE

Joins sheet 72 Barnes Butte NE

Joins sheet 87 Piersol Hills SE

Joins sheet 88 Barnes Butte SW

Joins sheet 89 Barnes Butte SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

56	57	58	56	COLEMAN HILL SE
			57	LEAHY SW
			58	LEAHY SE
70		72	70	PIERSOL HILLS NE
			72	BARNES BUTTE NE
87	88	89	87	PIERSOL HILLS SE
			88	BARNES BUTTE SW
			89	BARNES BUTTE SE

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BARNES BUTTE NW, WASHINGTON
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Joins sheet 57 Leahy SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BARNES BUTTE NE QUADRANGLE
SHEET NUMBER 72 OF 184

Joins sheet 59 Foster Coulee SW

Joins sheet 58 Leahy SE

119° 26′ 15″ — 119° 22′ 30″ — 47° 52′ 30″ — 47° 48′ 45″

R. 27 E.

T. 28 N. / T. 27 N.

18 000mE · 19 · 20 · 21 · 22

53 05 · 53 04 · 53 04 000mN · 53 03 · 53 03 000mN · 53 02 · 53 01 · 53 00 · 52 99 · 52 99 000mN

Joins sheet 71 Barnes Butte NW

Joins sheet 73 Sims Corner NW

Joins sheet 88 Barnes Butte SW

Joins sheet 89 Barnes Butte SE

Joins sheet 90 Sims Corner SW

Barnes Butte

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

57	58	59	57 LEAHY SW 58 LEAHY SE 59 FOSTER COULEE SW
71		73	71 BARNES BUTTE NW 73 SIMS CORNER NW
88	89	90	88 BARNES BUTTE SW 89 BARNES BUTTE SE 90 SIMS CORNER SW

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BARNES BUTTE NE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
SIMS CORNER NW QUADRANGLE
SHEET NUMBER 73 OF 184

119°22′30″ — 119°18′45″ — 47°52′30″ — 47°48′45″

R. 27 E. — R. 28 E.

T. 28 N. — T. 27 N.

323000m E — 324 — 325 — 326 — 327

5304 — 5303000m N — 5302 — 5301 — 5300 — 5299 — 5298000m N

Sims Corner

Joins sheet 72 Barnes Butte NE

Joins sheet 74 Sims Corner NE

Joins sheet 89 Barnes Butte SE

Joins sheet 90 Sims Corner SW

Joins sheet 91 Sims Corner SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

58	59	60	58 LEAHY SE 59 FOSTER COULEE SW 60 FOSTER COULEE SE
72		74	72 BARNES BUTTE NE 74 SIMS CORNER NE
89	90	91	89 BARNES BUTTE SE 90 SIMS CORNER SW 91 SIMS CORNER SE

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SIMS CORNER NW, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
SIMS CORNER NE QUADRANGLE
SHEET NUMBER 74 OF 184

Joins sheet 59 Foster Coulee SW

Joins sheet 60 Foster Coulee SE

Joins sheet 61 Barker Canyon SW

119°18′45″ — 119°15′00″ — 47°52′30″ — 47°48′45″

R. 28 E.

T. 28 N. / T. 27 N.

Joins sheet 73 Sims Corner NW

Joins sheet 75 Steamboat Rock West NW

Horse Lake
458

Joins sheet 90 Sims Corner SW

Joins sheet 91 Sims Corner SE

Joins sheet 92 Steamboat Rock West SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

59	60	61	59	FOSTER COULEE SW
			60	FOSTER COULEE SE
			61	BARKER CANYON SW
73		75	73	SIMS CORNER NW
			75	STEAMBOAT ROCK WEST NW
			90	SIMS CORNER SW
90	91	92	91	SIMS CORNER SE
			92	STEAMBOAT ROCK WEST SW

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SIMS CORNER NE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 74 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

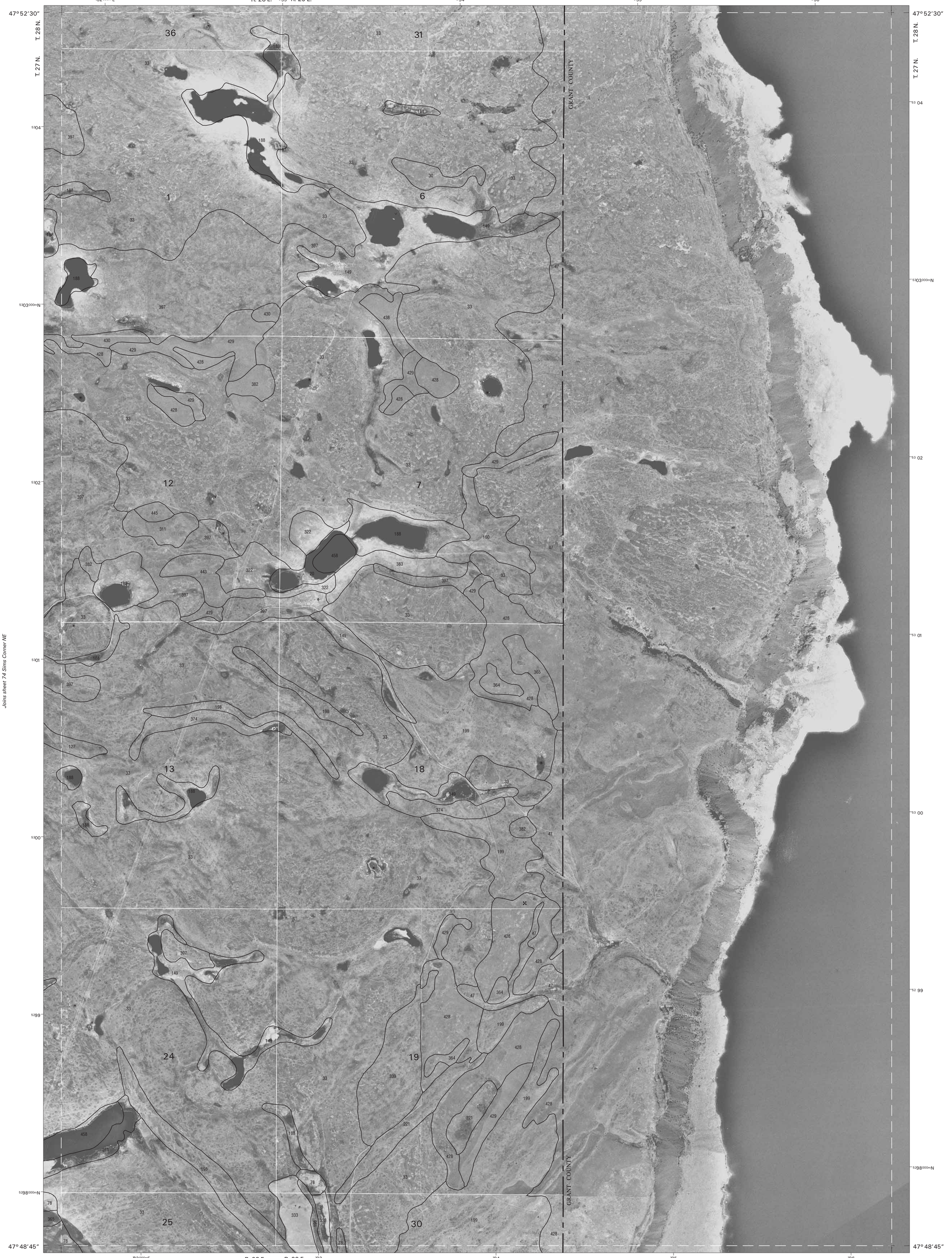
DOUGLAS COUNTY, WASHINGTON
STEAMBOAT ROCK WEST NW QUADRANGLE
SHEET NUMBER 75 OF 184

119°15′00″ — 119°11′15″ — 47°52′30″ — 47°48′45″

R. 28 E. — R. 29 E.

T. 28 N. — T. 27 N.

GRANT COUNTY



Joins sheet 74 Sims Corner NE

Joins sheet 91 Sims Corner SE

Joins sheet 92 Steamboat Rock West SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

60	61	62	60 FOSTER COULEE SE 61 BARKER CANYON SW 62 BARKER CANYON SE
74			74 SIMS CORNER NE
91	92		91 SIMS CORNER SE 92 STEAMBOAT ROCK WEST SW

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STEAMBOAT ROCK WEST NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
WINESAP SW QUADRANGLE
SHEET NUMBER 76 OF 184

120°15′00″ 120°11′15″

706 000m E 707 708 709 710

47°48′45″ 47°48′45″

5298 5298 000m N

5297 000m N 5297

5296 5296

5295 5295

5294 5294

5293 5293 000m N

5292 000m N 47°45′00″ 47°45′00″

707 000m E 708 709 710 R. 21 E.

120°15′00″ 120°11′15″

Joins sheet 93 Entiat NW

Joins sheet 77 Winesap SE

Joins sheet 94 Entiat NE

T. 26 N.

COLUMBIA RIVER
CHELAN COUNTY
LAKE ENTIAT

15 16

458 274 268 72 266 214 427 272 380

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

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77 WINESAP SE
93 ENTIAT NW
94 ENTIAT NE

WINESAP SW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 76 OF 184

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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WINESAP SE QUADRANGLE
SHEET NUMBER 77 OF 184

120°11'15" 120° 07'30"

711 000mE 712 713 714 715

47° 48'45" 47° 48'45"

5299 5299

5298000mN 5298000mN

5297 5297

5296 5296

5295 5295

5294 5294

5293000mN 5293000mN

47° 45'00" 47° 45'00"

120°11'15" 120° 07'30"

711 000mE 712 713 714 715 R. 21 E. R. 22 E.

T. 26 N. T. 26 N.

Joins sheet 76 Winesap SW

Joins sheet 78 Chelan SW

Joins sheet 94 Entiat NE

Joins sheet 93 Entiat NW

Joins sheet 95 Waterville NW

CHELAN COUNTY
LAKE ENTIAT
COLUMBIA RIVER
DOUGLAS COUNTY
CHELAN COUNTY
LAKE ENTIAT
BRAYS ROAD
97
10 11 12 13 14 15 7 18

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

76		78
93	94	95

76 WINESAP SW
78 CHELAN SW
93 ENTIAT NW
94 ENTIAT NE
95 WATERVILLE NW

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WINESAP SE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
CHELAN SW QUADRANGLE
SHEET NUMBER 78 OF 184

120° 07′ 30″ — 120° 03′ 45″ — 47° 48′ 45″ — 47° 45′ 00″

716 000mE — 717 — 718 — R. 22 E. — 719 — 720

5299 — 52 99
5298 000mN — 52 98 000mN
5297 — 52 97
5296 — 52 96
5295 — 52 95
5294 — 52 94
5293 000mN — 52 93 000mN

T. 26 N.

Joins sheet 77 Winesap SE

Joins sheet 79 Chelan SE

Joins sheet 94 Entiat NE

Joins sheet 95 Waterville NW

Joins sheet 96 Waterville NE

CHELAN COUNTY
LAKE ENTIAT
COLUMBIA RIVER

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

77		79
94	95	96

77 WINESAP SE
79 CHELAN SE
94 ENTIAT NE
95 WATERVILLE NW
96 WATERVILLE NE

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CHELAN SW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
CHELAN SE QUADRANGLE
SHEET NUMBER 79 OF 184

Joins sheet 63 Chelan Falls NW

120° 03′ 45″ — 120° 00′ 00″
47° 48′ 45″ — 47° 45′ 00″
720 000m E — 721 — 722 — 723 — 724
5299 — 5298 000m N — 5297 — 5296 — 5295 — 5294 — 5293 000m N

Joins sheet 78 Chelan SW

Joins sheet 80 Chelan Falls SW

CHELAN COUNTY
LAKE ENTIAT
COLUMBIA RIVER
CHELAN COUNTY
LAKE ENTIAT

Greens Canyon

T. 26 N.

R. 22 E. R. 23 E.

721 000m E — 722 — 723 — 724

Joins sheet 96 Waterville NE

Joins sheet 95 Waterville NW

Joins sheet 97 Lamoine NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

		63
78		80
95	96	97

63 CHELAN FALLS NW
78 CHELAN SW
80 CHELAN FALLS SW
95 WATERVILLE NW
96 WATERVILLE NE
97 LAMOINE NW

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DOUGLAS COUNTY, WASHINGTON
CHELAN FALLS SW QUADRANGLE
SHEET NUMBER 80 OF 184

Joins sheet 64 Chelan Falls NE

120° 00′ 00″ — 119° 56′ 15″ — 47° 48′ 45″ — 47° 45′ 00″

276 000m E — 277 — 278 — 279 — 280

5299 — 5298 000m N — 5297 — 5296 — 5295 — 5294 — 5293 000m N

T. 27 N. — T. 26 N.

R. 23 E.

Joins sheet 63 Chelan Falls NW

Joins sheet 79 Chelan SE

Joins sheet 81 Chelan Falls SE

Joins sheet 96 Waterville NE

Joins sheet 97 Lamoine NW

Joins sheet 98 Lamoine NE

CHELAN COUNTY

LAKE ENTIAT

CHELAN COUNTY

COLUMBIA RIVER

Farnham Canyon

Chelan Hill

97

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	63	64
79		81
96	97	98

63 CHELAN FALLS NW
64 CHELAN FALLS NE
79 CHELAN SE
81 CHELAN FALLS SE
~~96 WATERVILLE NE~~
97 LAMOINE NW
98 LAMOINE NE

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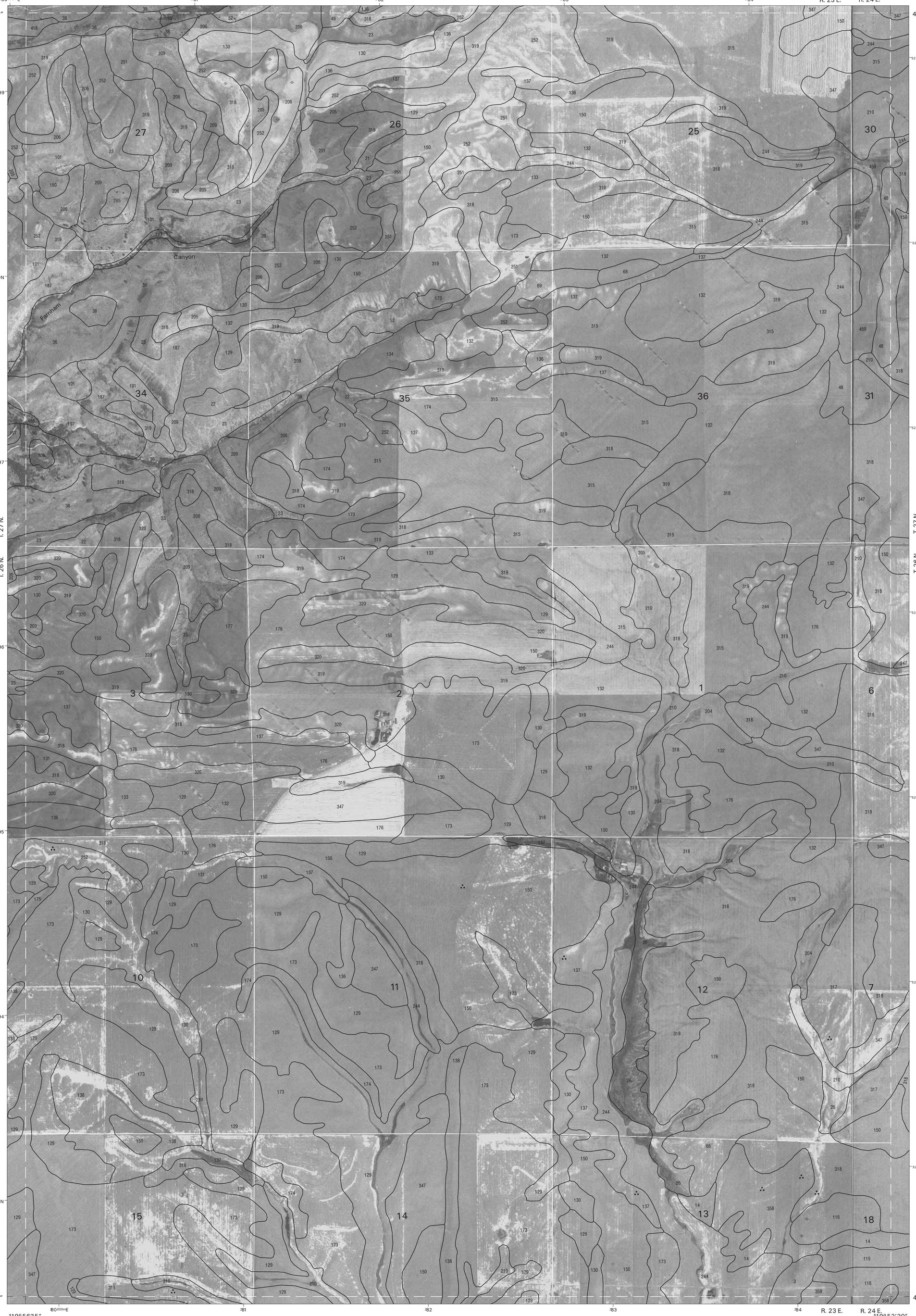
CHELAN FALLS SW, WASHINGTON
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SHEET NUMBER 80 OF 184

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UNITED STATES
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DOUGLAS COUNTY, WASHINGTON
CHELAN FALLS SE QUADRANGLE
SHEET NUMBER 81 OF 184

119°56'15" 119°52'30"



Joins sheet 80 Chelan Falls SW

Joins sheet 82 Mud Spring SW

Joins sheet 97 Lamoine NW

Joins sheet 98 Lamoine NE

Joins sheet 99 Withrow NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

63	64	65	63 CHELAN FALLS NW 64 CHELAN FALLS NE 65 MUD SPRING NW
80		82	80 CHELAN FALLS SW 82 MUD SPRING SW
97	98	99	97 LAMOINE NW 98 LAMOINE NE 99 WITHROW NW

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DOUGLAS COUNTY, WASHINGTON
MUD SPRING SW QUADRANGLE
SHEET NUMBER 82 OF 184

Joins sheet 64 Chelan Falls NE

Joins sheet 65 Mud Spring NW

Joins sheet 66 Mud Spring NE

119° 52′ 30″ — 119° 48′ 45″

285 000m E — 286 — 287 — R. 24 E. — 288 — 289

47° 48′ 45″

52 99

52 98 000m N

52 97

52 96

52 95

52 94

52 93 000m N

47° 45′ 00″

T. 27 N.

T. 26 N.

Joins sheet 81 Chelan Falls SE

Joins sheet 83 Mud Spring SE

Joins sheet 98 Lamoine NE

Joins sheet 99 Withrow NW

Joins sheet 100 Withrow NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

			64 CHELAN FALLS NE
64	65	66	65 MUD SPRING NW
			66 MUD SPRING NE
81		83	81 CHELAN FALLS SE
			83 MUD SPRING SE
			98 LAMOINE NE
98	99	100	99 WITHROW NW
			100 WITHROW NE

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MUD SPRING SW, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
MUD SPRING SE QUADRANGLE
SHEET NUMBER 83 OF 184

119° 48′ 45″ — 119° 45′ 00″ — 47° 48′ 45″ — 47° 45′ 00″

290000m E — 291 — 292 — 293 — 294

R. 24 E.

52 98 — 52 97 — 52 96 — 52 95 — 52 94 — 52 93 — 52 92

52 98000m N — 52 97000m N — 52 96000m N — 52 95000m N — 52 94000m N — 52 93000m N — 52 92000m N

T. 27 N. — T. 26 N.

Joins sheet 82 Mud Spring SW

Joins sheet 84 Mansfield SW

Joins sheet 99 Withrow NW

Joins sheet 100 Withrow NE

Joins sheet 101 Jameson Lake West NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

65	66	67
82		84
99	100	101

65 MUD SPRING NW
66 MUD SPRING NE
67 MANSFIELD NW
82 MUD SPRING SW
84 MANSFIELD SW
99 WITHROW NW
100 WITHROW NE
101 JAMESON LAKE WEST NW

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MUD SPRING SE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
MANSFIELD SW QUADRANGLE
SHEET NUMBER 84 OF 184

119° 45′ 00″ R. 24 E. R. 25 E. 119° 41′ 15″

47° 48′ 45″

47° 45′ 00″

295 000m E 296 297 298

52 98

52 97 000m N

52 96

52 95

52 94

52 93

52 92 000m N

T. 27 N.
T. 26 N.

Joins sheet 83 Mud Spring SE

Joins sheet 85 Mansfield SE

Joins sheet 100 Withrow NE

Joins sheet 101 Jameson Lake West NW

Joins sheet 102 Jameson Lake West NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

66	67	68
83		85
100	101	102

66 MUD SPRING NE
67 MANSFIELD NW
68 MANSFIELD NE
83 MUD SPRING SE
85 MANSFIELD SE
100 WITHROW NE
101 JAMESON LAKE WEST NW
102 JAMESON LAKE WEST NE

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MANSFIELD SW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
MANSFIELD SE QUADRANGLE
SHEET NUMBER 85 OF 184

119° 41′15″ — 119° 37′30″ — 47° 48′45″ — 47° 45′00″

299 000m E — 300 — 301 — 302 — 303 — R. 25 E.

5298 — 5297 000m N — 5296 — 5295 — 5294 — 5293 — 5292 000m N

5298 — 5297 000m N — 5296 — 5295 — 5294 — 5293 — 5292 000m N

T. 27 N. — T. 26 N.

Perk Lake

Mansfield

Joins sheet 84 Mansfield SW

Joins sheet 86 Piersol Hills SW

Joins sheet 101 Jameson Lake West NW

Joins sheet 102 Jameson Lake West NE

Joins sheet 103 Jameson Lake East NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

67	68	69	67 MANSFIELD NW 68 MANSFIELD NE 69 PIERSOL HILLS NW
84		86	84 MANSFIELD SW 86 PIERSOL HILLS SW
101	102	103	101 JAMESON LAKE WEST NW 102 JAMESON LAKE WEST NE 103 JAMESON LAKE EAST NW

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MANSFIELD SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 68 Mansfield NE

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DOUGLAS COUNTY, WASHINGTON
PIERSOL HILLS SW QUADRANGLE
SHEET NUMBER 86 OF 184

Joins sheet 70 Piersol Hills NE

Joins sheet 69 Piersol Hills NW

119° 37′ 30″ — R. 25 E. — R. 26 E. — 304 000m E — 305 — 306 — 307 — 308 — 119° 33′ 45″

47° 48′ 45″

52 98

52 97 000m N

52 96

T. 27 N.

T. 26 N.

52 95

52 94

52 93

52 92 000m N

47° 45′ 00″

Joins sheet 85 Mansfield SE

Joins sheet 87 Piersol Hills SE

Joins sheet 102 Jameson Lake West NE

Joins sheet 103 Jameson Lake East NW

Joins sheet 104 Jameson Lake East NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

68	69	70
85		87
102	103	104

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68 MANSFIELD NE
69 PIERSOL HILLS NW
70 PIERSOL HILLS NE
85 MANSFIELD SE
87 PIERSOL HILLS SE
102 JAMESON LAKE WEST NE
103 JAMESON LAKE EAST NW
104 JAMESON LAKE EAST NE

PIERSOL HILLS SW, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
PIERSOL HILLS SE QUADRANGLE
SHEET NUMBER 87 OF 184

119° 33′ 45″ — 119° 30′ 00″ — 47° 48′ 45″ — 47° 45′ 00″

309 000m E — 310 — 311 — 312

R. 26 E.

5297 000m N — 52 98 — 52 96 — 52 95 — 52 94 — 52 93 — 52 92 000m N

T. 27 N. — T. 26 N.

28 — 27 — 26 — 25
33 — 34 — 35 — 36
4 — 3 — 2 — 1
9 — 10 — 11 — 12
16 — 15 — 14 — 13

COULEE

MOSES

Joins sheet 86 Piersol Hills SW

Joins sheet 88 Barnes Butte SW

Joins sheet 103 Jameson Lake East NW

Joins sheet 104 Jameson Lake East NE

Joins sheet 105 Saint Andrews NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

69	70	71	69 PIERSOL HILLS NW 70 PIERSOL HILLS NE 71 BARNES BUTTE NW
86		88	86 PIERSOL HILLS SW 88 BARNES BUTTE SW
103	104	105	103 JAMESON LAKE EAST NW 104 JAMESON LAKE EAST NE 105 SAINT ANDREWS NW

INDEX TO ADJOINING 3.75 MAPS

PIERSOL HILLS SE, WASHINGTON
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
BARNES BUTTE SW QUADRANGLE
SHEET NUMBER 88 OF 184

119°30′00″ — 119°26′15″ — 47°48′45″ — 47°45′00″

313 000mE — 314 — 315 — 316 — 317

R. 26 E. — R. 27 E.

52 98 — 52 97 000mN — 52 96 — 52 95 — 52 94 — 52 93 — 52 92 000mN

T. 27 N. — T. 26 N.

Pot Hills

25 30 29 28
36 31 32 33
1 6 5 4
12 7 8 9
13 18 17 16

Joins sheet 87 Piersol Hills SE

Joins sheet 89 Barnes Butte SE

Joins sheet 104 Jameson Lake East NE

Joins sheet 105 Saint Andrews NW

Joins sheet 106 Saint Andrews NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

70	71	72	70 PIERSOL HILLS NE 71 BARNES BUTTE NW 72 BARNES BUTTE NE
87		89	87 PIERSOL HILLS SE 89 BARNES BUTTE SE
104	105	106	104 JAMESON LAKE EAST NE 105 SAINT ANDREWS NW 106 SAINT ANDREWS NE

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BARNES BUTTE SW, WASHINGTON
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 71 Barnes Butte NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 72 Barnes Butte NE

DOUGLAS COUNTY, WASHINGTON
BARNES BUTTE SE QUADRANGLE
SHEET NUMBER 89 OF 184

Joins sheet 73 Sims Corner NW

119° 26′15″ — 119° 22′30″ — 47° 48′45″ — 47° 45′00″

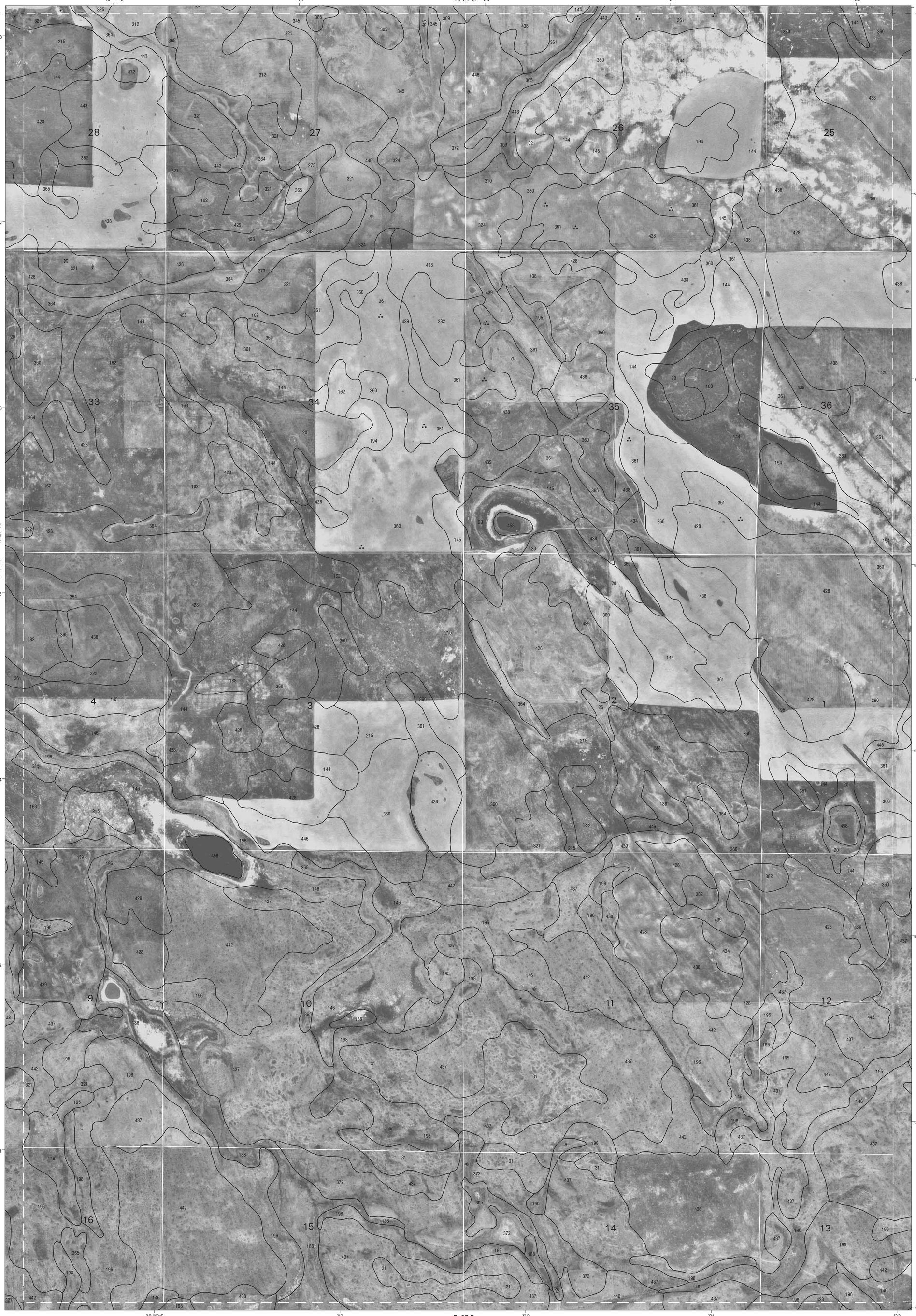
318 000mE — 319 — 320 — 321 — 322

R. 27 E.

5298 — 5297 000mN — 5296 — 5295 — 5294 — 5293 — 5292 000mN — 5291 000mN

5297 — 5296 000mN — 5295 — 5294 — 5293 — 5292 — 5291 000mN

T. 27 N. — T. 26 N.



Joins sheet 88 Barnes Butte SW

Joins sheet 90 Sims Corner SW

Joins sheet 105 Saint Andrews NW

Joins sheet 106 Saint Andrews NE

Joins sheet 107 Mold NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

71	72	73	71 BARNES BUTTE NW 72 BARNES BUTTE NE 73 SIMS CORNER NW
88		90	88 BARNES BUTTE SW 90 SIMS CORNER SW
105	106	107	105 SAINT ANDREWS NW 106 SAINT ANDREWS NE 107 MOLD NW

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BARNES BUTTE SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
SIMS CORNER SW QUADRANGLE
SHEET NUMBER 90 OF 184

119°22′30″ — R. 27 E. — 323 000m E — R. 28 E. — 324 — 325 — 326 — 119°18′45″

47°48′45″

52 97

52 96 000m N

T. 27 N.

52 95

T. 26 N.

52 94

52 93

52 92

52 91 000m N

47°45′00″

Joins sheet 89 Barnes Butte SE

Joins sheet 91 Sims Corner SE

Joins sheet 106 Saint Andrews NE

Joins sheet 107 Mold NW

Joins sheet 108 Mold NE

Sims Corner Reservoir

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

72	73	74	72 BARNES BUTTE NE 73 SIMS CORNER NW 74 SIMS CORNER NE
89		91	89 BARNES BUTTE SE 91 SIMS CORNER SE
106	107	108	106 SAINT ANDREWS NE 107 MOLD NW 108 MOLD NE

INDEX TO ADJOINING 3.75 MAPS

SIMS CORNER SW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
SIMS CORNER SE QUADRANGLE
SHEET NUMBER 91 OF 184

Joins sheet 73 Sims corner NW

Joins sheet 74 Sims Corner NE

Joins sheet 75 Steamboat Rock West NW

119°18′45″ — 119°15′00″ — 47°48′45″ — 47°45′00″

R. 28 E.

T. 27 N. — T. 26 N.

GRAND COULEE — GRANT COUNTY

Bunks Lake

Joins sheet 90 Sims Corner SW

Joins sheet 92 Steamboat Rock West SW

Joins sheet 107 Mold NW

Joins sheet 108 Mold NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

73	74	75	73 SIMS CORNER NW 74 SIMS CORNER NE 75 STEAMBOAT ROCK WEST NW
90		92	90 SIMS CORNER SW 92 STEAMBOAT ROCK WEST SW
107	108		107 MOLD NW 108 MOLD NE

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SIMS CORNER SE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
STEAMBOAT ROCK WEST SW QUADRANGLE
SHEET NUMBER 92 OF 184

Joins sheet 75 Steamboat Rock West NW

119°15′00″ — 119°11′15″ — 47°48′45″ — 47°45′00″

32 000mE — R. 28 E. — R. 29 E. — 33 — 34 — 35 — 36

52 97 — 52 96 000mN — 52 95 — 52 94 — 52 93 — 52 92 — 52 91 000mN

T. 27 N. — T. 26 N.

GRANT COUNTY

25 — 30 — 36 — 1

Joins sheet 91 Sims Corner SE

Joins sheet 108 Mold NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

			74 SIMS CORNER NE
74	75		75 STEAMBOAT ROCK WEST NW
91			91 SIMS CORNER SE
			108 MOLD NE
108			

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STEAMBOAT ROCK WEST SW, WASHINGTON

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ENTIAT NW QUADRANGLE
SHEET NUMBER 93 OF 184

Joins sheet 76 Winesap SW

Joins sheet 77 Winesap SE

120°15′00″ — 120°11′15″

707 000m E — 708 — 709 — 710 — R. 21 E.

47° 45′00″

52 92

52 91

52 91 000m N

52 90 000m N

52 90

52 89

52 88

52 87

T. 26 N.

T. 25 N.

52 86 000m N

47° 41′15″

707 000m E — 708 — 709 — 710 — R. 21 E.

120°15′00″ — 120°11′15″

Joins sheet 109 Entiat SW

Joins sheet 94 Entiat NE

Joins sheet 110 Entiat SE

CHELAN COUNTY

LAKE ENTIAT

RIVER

COLUMBIA

BRAYS ROAD

16 15 21 22 28 27 33 34 3

97

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	76	77	76 WINESAP SW 77 WINESAP SE
		94	94 ENTIAT NE
	109	110	109 ENTIAT SW 110 ENTIAT SE

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ENTIAT NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 76 Winesap SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 77 Winesap SE

DOUGLAS COUNTY, WASHINGTON
ENTIAT NE QUADRANGLE
SHEET NUMBER 94 OF 184

Joins sheet 78 Chelan SW

120°11'15" 711 000mE 712 713 714 R. 21 E. 715 R. 22 E. 120°07'30"

47°45'00" 5292 5291 000mN 5290 5289 5288 5287 47°41'15"

T. 26 N. T. 25 N.

15 14 13 18 22 23 24 19 27 26 25 30 34 35 36 31 3 2 1 6

Browns Canyon

BRAYS ROAD

WATERVILLE PLATEAU

Joins sheet 93 Entiat NW

Joins sheet 95 Waterville NW

Joins sheet 109 Entiat SW

Joins sheet 110 Entiat SE

Joins sheet 111 Waterville SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

76	77	78	76 WINESAP SW 77 WINESAP SE 78 CHELAN SW
93		95	93 ENTIAT NW 95 WATERVILLE NW
109	110	111	109 ENTIAT SW 110 ENTIAT SE 111 WATERVILLE SW

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ENTIAT NE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
WATERVILLE NW QUADRANGLE
SHEET NUMBER 95 OF 184

Joins sheet 77 Winesap SE

Joins sheet 78 Chelan SW

Joins sheet 79 Chelan SE

120° 07′ 30″ — 120° 03′ 45″ — 47° 45′ 00″ — 47° 41′ 15″

716 000mE — 717 — R. 22 E. — 718 — 719 — 720

52 92 — 52 91 000mN — 52 90 — 52 89 — 52 88 — 52 87 — 52 86 000mN

T. 26 N. — T. 25 N.

Joins sheet 94 Entiat NE

Joins sheet 96 Waterville NE

Joins sheet 110 Entiat SE

Joins sheet 111 Waterville SW

Joins sheet 112 Waterville SE

WATERVILLE

PLATEAU

BROWNS CANYON ROAD

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

77	78	79	77 WINESAP SE 78 CHELAN SW 79 CHELAN SE
94		96	94 ENTIAT NE 96 WATERVILLE NE
110	111	112	110 ENTIAT SE 111 WATERVILLE SW 112 WATERVILLE SE

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WATERVILLE NW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
WATERVILLE NE QUADRANGLE
SHEET NUMBER 96 OF 184

Joins sheet 78 Chelan SW

Joins sheet 79 Chelan SE

Joins sheet 80 Chelan Falls SW

120° 03′ 45″ — 120° 00′ 00″ — 47° 45′ 00″ — 47° 41′ 15″

721 000mE — 722 — 723 — 724 — 725

R. 22 E. — R. 23 E.

52 92 — 52 91 000mN — 52 90 — 52 89 — 52 88 — 52 87 — 52 86 000mN

T. 26 N. — T. 25 N.

Joins sheet 95 Waterville NW

Joins sheet 97 Lamoine NW

Joins sheet 111 Waterville SW

Joins sheet 112 Waterville SE

Joins sheet 113 Lamoine SW

Sinks Canyon

WATERVILLE

PLATEAU

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

78	79	80
95		97
111	112	113

78 CHELAN SW
79 CHELAN SE
80 CHELAN FALLS SW
95 WATERVILLE NW
97 LAMOINE NW
111 WATERVILLE SW
112 WATERVILLE SE
113 LAMOINE SW

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DOUGLAS COUNTY, WASHINGTON
LAMOINE NW QUADRANGLE
SHEET NUMBER 97 OF 184

120° 00′ 00″ — 119° 56′ 15″ — 47° 45′ 00″ — 47° 41′ 15″

276 000m E — 277 — 278 — 279 — 275 000m E

5292 — 5291 000mN — 5290 — 5289 — 5288 — 5287 — 5286 000mN

5292 92 — 5291 000mN — 5290 90 — 5289 89 — 5288 88 — 5287 87 — 5286 000mN

R. 23 E.

T. 26 N. — T. 25 N.

PLATEAU — WATERVILLE

18 17 16 15
19 20 21 22
30 29 28 27
31 32 33 34
6 5 4 3

Joins sheet 96 Waterville NE

Joins sheet 98 Lamoine NE

Joins sheet 112 Waterville SE

Joins sheet 113 Lamoine SW

Joins sheet 114 Lamoine SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

79	80	81	79 CHELAN SE 80 CHELAN FALLS SW 81 CHELAN FALLS SE
96		98	96 WATERVILLE NE 98 LAMOINE NE 112 WATERVILLE SE
112	113	114	113 LAMOINE SW 114 LAMOINE SE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 80 Chelan Falls SW

UNITED STATES
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Joins sheet 81 Chelan Falls SE

DOUGLAS COUNTY, WASHINGTON
LAMOINE NE QUADRANGLE
SHEET NUMBER 98 OF 184

Joins sheet 82 Mud Spring SW

119°56'15" 119°52'30"
280 000m E 281 282 283 284 R. 23 E. R. 24 E.
47°45'00" 52 92 52 91 000m N 52 90 52 89 52 88 52 87 T. 26 N. T. 25 N. 52 86 000m N 47°41'15"

Lamoine

Joins sheet 97 Lamoine NW

Joins sheet 99 Withrow NW

Joins sheet 113 Lamoine SW

Joins sheet 114 Lamoine SE

Joins sheet 115 Withrow SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

80	81	82	80 CHELAN FALLS SW 81 CHELAN FALLS SE 82 MUD SPRING SW
97		99	97 LAMOINE NW 99 WITHROW NW
113	114	115	113 LAMOINE SW 114 LAMOINE SE 115 WITHROW SW

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LAMOINE NE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
WITHROW NW QUADRANGLE
SHEET NUMBER 99 OF 184

119°52′30″ — 285 000mE — 286 — R. 24 E. — 287 — 288 — 289 — 119°48′45″

47°45′00″ — 5292 — 5291 000mN — 5290 — 5289 — 5288 — 5287 — T. 26 N. — T. 25 N. — 5286 000mN — 47°41′15″

Joins sheet 98 Lamoine NE

Joins sheet 100 Withrow NE

Joins sheet 114 Lamoine SE

Joins sheet 115 Withrow SW

Joins sheet 116 Withrow SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

81	82	83	81 CHELAN FALLS SE 82 MUD SPRING SW 83 MUD SPRING SE
98		100	98 LAMOINE NE 100 WITHROW NE
114	115	116	114 LAMOINE SE 115 WITHROW SW 116 WITHROW SE

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WITHROW NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
WITHROW NE QUADRANGLE
SHEET NUMBER 100 OF 184

119° 48′ 45″ — 290 000m E — 291 — R. 24 E. — 292 — 293 — 119° 45′ 00″

47° 45′ 00″ — 52 92 — 52 91 000m N — 52 90 — 52 90 000m N — 52 89 — 52 88 — 52 87 — 47° 41′ 15″

T. 26 N. — T. 25 N.

15 14 13 22 23 24 27 26 25 34 35 36 3 2 1

Withrow — Dutch — Henry — Draw

Joins sheet 99 Withrow NW

Joins sheet 101 Jameson Lake West NW

Joins sheet 115 Withrow SW

Joins sheet 116 Withrow SE

Joins sheet 117 Jameson Lake West SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

82	83	84	82 MUD SPRING SW 83 MUD SPRING SE 84 MANSFIELD SW
99		101	99 WITHROW NW 101 JAMESON LAKE WEST NW
115	116	117	115 WITHROW SW 116 WITHROW SE 117 JAMESON LAKE WEST SW

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WITHROW NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE WEST NW QUADRANGLE
SHEET NUMBER 101 OF 184

119° 45′ 00″ — 294 000m E — R. 24 E. — R. 25 E. — 295 — 296 — 297 — 298 — 119° 41′ 15″

47° 45′ 00″ — 52 91 — 52 90 000m N — 52 89 — 52 88 — 52 87 — 52 86 — 52 85 000m N — 47° 41′ 15″

T. 26 N. — T. 25 N.

Joins sheet 100 Withrow NE

Joins sheet 102 Jameson Lake West NE

Joins sheet 116 Withrow SE

Joins sheet 117 Jameson Lake West SW

Joins sheet 118 Jameson Lake West SE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

83	84	85	83 MUD SPRING SE 84 MANSFIELD SW 85 MANSFIELD SE
100		102	100 WITHROW NE 102 JAMESON LAKE WEST NE
116	117	118	116 WITHROW SE 117 JAMESON LAKE WEST SW 118 JAMESON LAKE WEST SE

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JAMESON LAKE WEST NW, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE WEST NE QUADRANGLE
SHEET NUMBER 102 OF 184

119° 41′15″ — 119° 37′30″ — 47° 45′00″ — 47° 41′15″

299 000m E — 300 — R. 25 E. — 301 — 302 — 303

5291 — 5290 000m N — 5289 — 5288 — 5287 — 5286 — 5285 000m N

52 91 — 52 89 — 52 88 — 52 87 — 52 86

T. 26 N. — T. 25 N.

16 — 15 — 14 — 13 — 21 — 22 — 23 — 24 — 28 — 27 — 26 — 25 — 33 — 34 — 35 — 36 — 4 — 3 — 2 — 1

Jameson Lake — Kester Draw

Joins sheet 101 Jameson Lake West NW

Joins sheet 103 Jameson Lake East NW

Joins sheet 117 Jameson Lake West SW

Joins sheet 118 Jameson Lake West SE

Joins sheet 119 Jameson Lake East SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

84	85	86	84 MANSFIELD SW 85 MANSFIELD SE 86 PIERSOL HILLS SW
101		103	101 JAMESON LAKE WEST NW 103 JAMESON LAKE EAST NW
117	118	119	117 JAMESON LAKE WEST SW 118 JAMESON LAKE WEST SE 119 JAMESON LAKE EAST SW

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JAMESON LAKE WEST NE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE EAST NW QUADRANGLE
SHEET NUMBER 103 OF 184

119° 37′ 30″ — R. 25 E. — R. 26 E. — 304 000m E — 305 — 306 — 307 — 308 — 119° 33′ 45″

47° 45′ 00″ — 52 91 — 52 90 000m N — 52 89 — 52 88 — 52 87 — 52 86 — 52 85 000m N — 47° 41′ 15″

T. 26 N. — T. 25 N.

Joins sheet 102 Jameson Lake West NE

Joins sheet 104 Jameson Lake East NE

Joins sheet 118 Jameson Lake West SE

Joins sheet 119 Jameson Lake East SW

Joins sheet 120 Jameson Lake East SE

GRIMES LAKE

COULEE

MOSES

Long Canyon

JAMESON LAKE

13 18 17 16 24 19 20 21 25 30 29 28 31 32 33 36 6 5 4

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

85	86	87	85 MANSFIELD SE 86 PIERSOL HILLS SW 87 PIERSOL HILLS SE
102		104	102 JAMESON LAKE WEST NE 104 JAMESON LAKE EAST NE
118	119	120	118 JAMESON LAKE WEST SE 119 JAMESON LAKE EAST SW 120 JAMESON LAKE EAST SE

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JAMESON LAKE EAST NW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE EAST NE QUADRANGLE
SHEET NUMBER 104 OF 184

119° 33′ 45″ — 308 000m E — 309 — 310 — R. 26 E. — 311 — 312 — 119° 30′ 00″

47° 45′ 00″ — 52 91 — 52 90 000m N — 52 89 — 47° 45′ 00″

16 15 14 13
21 22 23 24
28 27 26 25
33 34 35 36
4 3 2 1

Chester Butte
Long Canyon
Fisher Lakes

52 88 — 52 87 — 52 86 — 52 85 000m N — 47° 41′ 15″

T. 26 N.
T. 25 N.

Joins sheet 103 Jameson Lake East NW

Joins sheet 105 Saint Andrews NW

Joins sheet 119 Jameson Lake East SW

Joins sheet 120 Jameson Lake East SE

Joins sheet 121 Saint Andrews SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

86	87	88
103		105
119	120	121

86 PIERSOL HILLS SW
87 PIERSOL HILLS SE
88 BARNES BUTTE SW
103 JAMESON LAKE EAST NW
105 SAINT ANDREWS NW
119 JAMESON LAKE EAST SW
120 JAMESON LAKE EAST SE
121 SAINT ANDREWS SW

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JAMESON LAKE EAST NE, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
SAINT ANDREWS NW QUADRANGLE
SHEET NUMBER 105 OF 184

Joins sheet 87 Piersol Hills SE

Joins sheet 88 Barnes Butte SW

Joins sheet 89 Barnes Butte SE

119° 30′ 00″ — 313 000mE — R. 26 E. — R. 27 E. — 314 — 315 — 316 — 317 — 119° 26′ 15″

47° 45′ 00″ — 52 91 — 52 90 000mN — 52 89 — 52 88 — 52 87 — 52 86 — 52 85 000mN — 47° 41′ 15″

T. 26 N. — T. 25 N.

Joins sheet 104 Jameson Lake East NE

Joins sheet 106 Saint Andrews NE

Joins sheet 120 Jameson Lake East SE

Joins sheet 121 Saint Andrews SW

Joins sheet 122 Saint Andrews SE

Haynes Lake

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

87	88	89	87 PIERSOL HILLS SE 88 BARNES BUTTE SW 89 BARNES BUTTE SE
104		106	104 JAMESON LAKE EAST NE 106 SAINT ANDREWS NE
120	121	122	120 JAMESON LAKE EAST SE 121 SAINT ANDREWS SW 122 SAINT ANDREWS SE

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SAINT ANDREWS NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



Joins sheet 105 Saint Andrews NW

Joins sheet 107 Mold NW

Joins sheet 121 Saint Andrews SW

Joins sheet 122 Saint Andrews SE

Joins sheet 123 Mold SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

88	89	90	88 BARNES BUTTE SW 89 BARNES BUTTE SE 90 SIMS CORNER SW
105		107	105 SAINT ANDREWS NW 107 MOLD NW
121	122	123	121 SAINT ANDREWS SW 122 SAINT ANDREWS SE 123 MOLD SW

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SAINT ANDREWS NE, WASHINGTON
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SHEET NUMBER 106 OF 184

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DOUGLAS COUNTY, WASHINGTON
MOLD NW QUADRANGLE
SHEET NUMBER 107 OF 184

119°22′30″ — 119°18′45″ — 47°45′00″ — 47°41′15″

R. 27 E. — R. 28 E.

T. 26 N. — T. 25 N.

Ludike Lake — Heimlen Lake — Jollys Lake — Jollys Pond — Tule Lake — Sullivan Lake — Pilot Rock

Joins sheet 106 Saint Andrews NE
Joins sheet 108 Mold NE
Joins sheet 122 Saint Andrews SE
Joins sheet 123 Mold SW
Joins sheet 124 Mold SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

89	90	91	89 BARNES BUTTE SE 90 SIMS CORNER SW 91 SIMS CORNER SE
106		108	106 SAINT ANDREWS NE 108 MOLD NE
122	123	124	122 SAINT ANDREWS SE 123 MOLD SW 124 MOLD SE

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MOLD NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 90 Sims Corner SW

UNITED STATES
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Joins sheet 91 Sims Corner SE

DOUGLAS COUNTY, WASHINGTON
MOLD NE QUADRANGLE
SHEET NUMBER 108 OF 184

Joins sheet 92 Steamboat Rock West SW

119°18′45″ — 119°15′00″ — 47°45′00″ — 47°41′15″

R. 28 E.

GRAND COULEE — GRANT COUNTY — BANKS LAKE

T. 26 N. — T. 25 N.

Joins sheet 107 Mold NW

Joins sheet 123 Mold SW

Joins sheet 124 Mold SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

90	91	92	90 SIMS CORNER SW 91 SIMS CORNER SE 92 STEAMBOAT ROCK WEST SW
107			107 MOLD NW
123	124		123 MOLD SW 124 MOLD SE

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MOLD NE, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
ENTIAT SW QUADRANGLE
SHEET NUMBER 109 OF 184

Joins sheet 93 Entiat NW
Joins sheet 94 Entiat NE
Joins sheet 110 Entiat SE
Joins sheet 125 Rocky Reach Dam NE
Joins sheet 126 Orondo NW
Joins sheet 127 Orondo NE

120°15′00″ 120°11′15″
47°41′15″ 47°37′30″
707 000m E 708 709 710 711
5284 000m N 5283 5282 5281 5280 5279 000m N
T. 25 N.
R. 21 E.

COLUMBIA RIVER
LAKE ENTIAT
CHELAN COUNTY
Orondo

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

	93	94	93 ENTIAT NW 94 ENTIAT NE
		110	110 ENTIAT SE
125	126	127	125 ROCKY REACH DAM NE 126 ORONDO NW 127 ORONDO NE

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ENTIAT SW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 126 Orondo NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
ENTIAT SE QUADRANGLE
SHEET NUMBER 110 OF 184

120°11'15" 120°07'30"

711 000mE 712 713 714 R. 21 E. 715 R. 22 E.

47°41'15"

5285 5284 000mN 5283 5282 5281 5280 5279 000mN

T. 25 N.

47°37'30"

12 000mE 13 14 15 R. 21 E. R. 22 E. 16

120°11'15" 120°07'30"

WATERVILLE PLATEAU

Canyon Pine Canyon Corbaley Canyon

Joins sheet 109 Entiat SW

Joins sheet 111 Waterville SW

Joins sheet 126 Orondo NW

Joins sheet 127 Orondo NE

Joins sheet 128 Douglas NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

93	94	95
109		111
126	127	128

93 ENTIAT NW
94 ENTIAT NE
95 WATERVILLE NW
109 ENTIAT SW
111 WATERVILLE SW
126 ORONDO NW
127 ORONDO NE
128 DOUGLAS NW

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ENTIAT SE, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

120° 07′ 30″ — 120° 03′ 45″ — 47° 41′ 15″ — 47° 37′ 30″

716 000mE 717 718 719 720

R. 22 E.

5285 5284 000mN 5283 5282 5281 5280 5279 000mN

T. 25 N.

Canyon

Pine

WATERVILLE PLATEAU

Waterville

Standpipe Hill

Joins sheet 110 Entiat SE

Joins sheet 112 Waterville SE

Joins sheet 127 Orondo NE

Joins sheet 128 Douglas NW

Joins sheet 129 Douglas NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

94	95	96	94 ENTIAT NE 95 WATERVILLE NW 96 WATERVILLE NE
110		112	110 ENTIAT SE 112 WATERVILLE SE
127	128	129	127 ORONDO NE 128 DOUGLAS NW 129 DOUGLAS NE

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WATERVILLE SW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
WATERVILLE SE QUADRANGLE
SHEET NUMBER 112 OF 184

120° 03′ 45″ — 120° 00′ 00″ — 47° 41′ 15″ — 47° 37′ 30″

7 21 000m E — 7 22 — 7 23 — 7 24 — 7 25

R. 22 E. — R. 23 E.

5284 000m N — 5285 — 5283 — 5282 — 5281 — 5280 — 5279 000m N

T. 25 N.

WATERVILLE

PLATEAU

Kummer Draw

Waterville

Joins sheet 111 Waterville SW
Joins sheet 113 Lamoine SW
Joins sheet 128 Douglas NW
Joins sheet 129 Douglas NE
Joins sheet 130 Alstown NW

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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

95	96	97
111		113
128	129	130

95 WATERVILLE NW
96 WATERVILLE NE
97 LAMOINE NW
111 WATERVILLE SW
113 LAMOINE SW
128 DOUGLAS NW
129 DOUGLAS NE
130 ALSTOWN NW

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WATERVILLE SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

120° 00′ 00″ — 119° 56′ 15″ — 47° 41′ 15″ — 47° 37′ 30″

275 000m E — 276 — 277 — 278 — 279

R. 23 E.

T. 25 N.

5285 — 5284 000m N — 5283 — 5282 — 5281 — 5280 — 5279 000m N

PLATEAU

WATERVILLE

Douglas Draw

Sections: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34

Joins sheet 112 Waterville SE

Joins sheet 114 Lamoine SE

Joins sheet 129 Douglas NE

Joins sheet 130 Alstown NW

Joins sheet 131 Alstown NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

96	97	98	96 WATERVILLE NE 97 LAMOINE NW 98 LAMOINE NE
112		114	112 WATERVILLE SE 114 LAMOINE SE ~~129 DOUGLAS NE~~
129	130	131	130 ALSTOWN NW 131 ALSTOWN NE

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LAMOINE SW, WASHINGTON

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
LAMOINE SE QUADRANGLE
SHEET NUMBER 114 OF 184

Joins sheet 97 Lamoine NW

Joins sheet 98 Lamoine NE

Joins sheet 99 Withrow NW

119°56'15"

119°52'30"

47°41'15"

47°37'30"

R. 23 E.

R. 24 E.

T. 25 N.

Joins sheet 113 Lamoine SW

Joins sheet 115 Withrow SW

Joins sheet 130 Alstown NW

Joins sheet 131 Alstown NE

Joins sheet 132 Farmer NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

97	98	99	97 LAMOINE NW 98 LAMOINE NE 99 WITHROW NW
113		115	113 LAMOINE SW 115 WITHROW SW
130	131	132	130 ALSTOWN NW 131 ALSTOWN NE 132 FARMER NW

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LAMOINE SE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WITHROW SW QUADRANGLE
SHEET NUMBER 115 OF 184

119°52′30″ — 285 000m E — 286 — R. 24 E. — 287 — 288 — 289 — 119°48′45″

47°41′15″

52 85

52 84 000m N

52 83

T. 25 N.

52 82

52 81

52 80

52 79 000m N

47°37′30″

84 000m E

Joins sheet 114 Lamoine SE

Joins sheet 116 Withrow SE

Joins sheet 131 Alstown NE

Joins sheet 132 Farmer NW

Joins sheet 133 Farmer NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

98	99	100	98 LAMOINE NE 99 WITHROW NW 100 WITHROW NE
114		116	114 LAMOINE SE 116 WITHROW SE
131	132	133	131 ALSTOWN NE 132 FARMER NW 133 FARMER NE

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3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WITHROW SE QUADRANGLE
SHEET NUMBER 116 OF 184

Joins sheet 99 Withrow NW

Joins sheet 100 Withrow NE

Joins sheet 101 Jameson Lake West NW

119° 48′ 45″ — 119° 45′ 00″ — 47° 41′ 15″ — 47° 37′ 30″

289 000m E — 290 — 291 — R. 24 E. — 292 — 293

5284 000m N — 5283 — 5282 — T. 25 N. — 5281 — 5280 — 5279 000m N

52 85 — 52 84 — 52 83 — 52 82 — 52 81 — 52 80

Joins sheet 115 Withrow SW

Joins sheet 117 Jameson Lake West SW

Joins sheet 132 Farmer NW

Joins sheet 133 Farmer NE

Joins sheet 134 Jameson Lake SW NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

99	100	101
115		117
132	133	134

99 WITHROW NW
100 WITHROW NE
101 JAMESON LAKE WEST NW
115 WITHROW SW
117 JAMESON LAKE WEST SW
132 FARMER NW
133 FARMER NE
134 JAMESON LAKE SW NW

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WITHROW SE, WASHINGTON
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

119° 45′ 00″ — R. 24 E. — R. 25 E. — 294 000m E — 295 — 296 — 297 — 298 — 119° 41′ 15″

47° 41′ 15″ — 5285 — 5284 000m N — 5283 — 5282 — 5281 — 5280 — 47° 37′ 30″

5284 — 5283 000m N — 5282 — 5281 — 5280 — 5279 — 5278 000m N

T. 25 N.

Durch — Henry — Draw

Joins sheet 116 Withrow SE

Joins sheet 118 Jameson Lake West SE

Joins sheet 133 Farmer NE

Joins sheet 134 Jameson Lake SW NW

Joins sheet 135 Jameson Lake SW NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

100	101	102
116		118
133	134	135

100 WITHROW NE
101 JAMESON LAKE WEST NW
102 JAMESON LAKE WEST NE
116 WITHROW SE
118 JAMESON LAKE WEST SE
133 FARMER NE
134 JAMESON LAKE SW NW
135 JAMESON LAKE SW NE

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JAMESON LAKE WEST SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE WEST SE QUADRANGLE
SHEET NUMBER 118 OF 184

119° 41′15″ — 299 000m E — 300 — R. 25 E. — 301 — 302 — 303 — 119° 37′30″

47° 41′15″ — 5284 — 5283 000m N — 5282 — 5281 — 5280 — 5279 — 5278 000m N — 47° 37′30″

T. 25 N.

COULEE — Creek — MOSES — McCartney — Kester — Draw — Lake — Jameson

Joins sheet 117 Jameson Lake West SW

Joins sheet 119 Jameson Lake East SW

Joins sheet 134 Jameson Lake SW NW

Joins sheet 135 Jameson Lake SW NE

Joins sheet 136 Jameson Lake SE NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

101	102	103
117		119
134	135	136

101 JAMESON LAKE WEST NW
102 JAMESON LAKE WEST NE
103 JAMESON LAKE EAST NW
117 JAMESON LAKE WEST SW
119 JAMESON LAKE EAST SW
134 JAMESON LAKE SW NW
135 JAMESON LAKE SW NE
136 JAMESON LAKE SE NW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

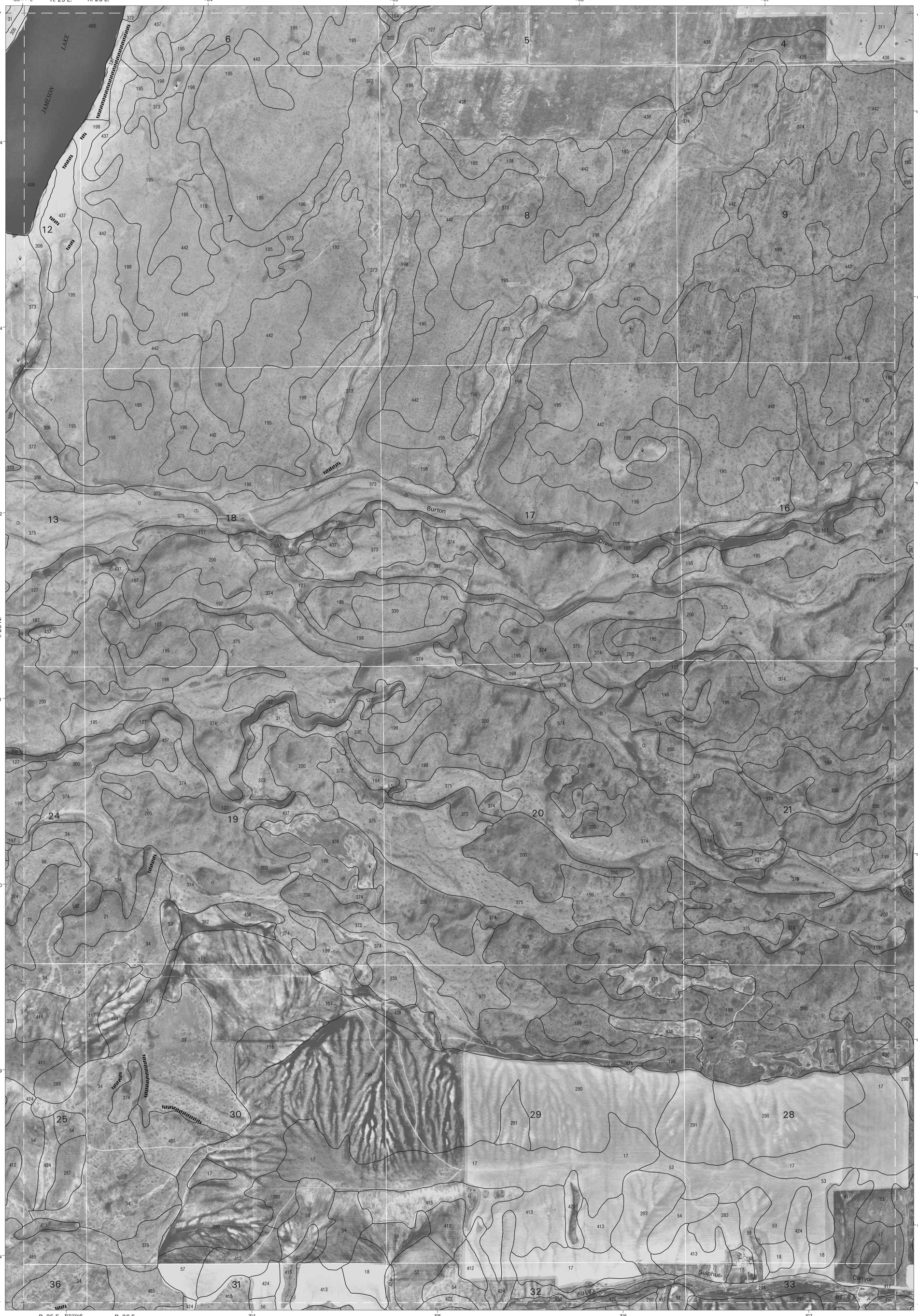
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE EAST SW QUADRANGLE
SHEET NUMBER 119 OF 184

119° 37′ 30″ — 119° 33′ 45″ — 47° 41′ 15″ — 47° 37′ 30″

R. 25 E. — R. 26 E.

T. 25 N.



Joins sheet 118 Jameson Lake West SE
Joins sheet 120 Jameson Lake East SE
Joins sheet 135 Jameson Lake SW NE
Joins sheet 136 Jameson Lake SE NW
Joins sheet 137 Jameson Lake SE NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

102	103	104
118		120
135	136	137

102 JAMESON LAKE WEST NE
103 JAMESON LAKE EAST NW
104 JAMESON LAKE EAST NE
118 JAMESON LAKE WEST SE
120 JAMESON LAKE EAST SE
135 JAMESON LAKE SW NE
136 JAMESON LAKE SE NW
137 JAMESON LAKE SE NE

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JAMESON LAKE EAST SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 103 Jameson Lake East NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE EAST SE QUADRANGLE
SHEET NUMBER 120 OF 184

Joins sheet 105 Saint Andrews NW

Joins sheet 104 Jameson Lake East NE

119°33′45″ — 119°30′00″ — 47°41′15″ — 47°37′30″

R. 26 E.

T. 25 N.

Joins sheet 119 Jameson Lake East SW

Joins sheet 121 Saint Andrews SW

Joins sheet 136 Jameson Lake SE NW

Joins sheet 137 Jameson Lake SE NE

Joins sheet 138 Park Lake NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

103	104	105	103 JAMESON LAKE EAST NW 104 JAMESON LAKE EAST NE 105 SAINT ANDREWS NW
119		121	119 JAMESON LAKE EAST SW 121 SAINT ANDREWS SW
136	137	138	136 JAMESON LAKE SE NW 137 JAMESON LAKE SE NE 138 PARK LAKE NW

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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
SAINT ANDREWS SW QUADRANGLE
SHEET NUMBER 121 OF 184

119° 30′ 00″ — 119° 26′ 15″ — 47° 41′ 15″ — 47° 37′ 30″

R. 26 E. — R. 27 E. — T. 25 N.

13 000mE — 314 — 315 — 316 — 317

52 84 — 52 83 000mN — 52 82 — 52 81 — 52 80 — 52 79 — 52 78 000mN



Joins sheet 120 Jameson Lake East SE

Joins sheet 122 Saint Andrews SE

Joins sheet 138 Park Lake NW

Joins sheet 137 Jameson Lake SE NE

Joins sheet 139 Park Lake NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

104	105	106	104 JAMESON LAKE EAST NE 105 SAINT ANDREWS NW 106 SAINT ANDREWS NE
120		122	120 JAMESON LAKE EAST SE 122 SAINT ANDREWS SE
137	138	139	137 JAMESON LAKE SE NE 138 PARK LAKE NW 139 PARK LAKE NE

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SAINT ANDREWS SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 105 Saint Andrews NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 106 Saint Andrews NE

DOUGLAS COUNTY, WASHINGTON
SAINT ANDREWS SE QUADRANGLE
SHEET NUMBER 122 OF 184

Joins sheet 107 Mold NW

119° 26′15″ — 119° 22′30″ — 47° 41′15″ — 47° 37′30″

317 000mE — 318 — 319 — 320 — 321

R. 27 E.

5284 — 52 84

5283 000mN — 52 83

5282 — 52 82

5281 — 52 81

5280 — 52 80

5279 — 52 79

5278 000mN — 52 78

T. 25 N.

Gilbert Butte

Joins sheet 121 Saint Andrews SW

Joins sheet 123 Mold SW

Joins sheet 138 Park Lake NW

Joins sheet 139 Park Lake NE

Joins sheet 140 Coulee City NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

105	106	107	105 SAINT ANDREWS NW 106 SAINT ANDREWS NE 107 MOLD NW
121		123	121 SAINT ANDREWS SW 123 MOLD SW
138	139	140	138 PARK LAKE NW 139 PARK LAKE NE 140 COULEE CITY NW

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SAINT ANDREWS SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
MOLD SW QUADRANGLE
SHEET NUMBER 123 OF 184

119°22′30″ — 119°18′45″ — 47°41′15″ — 47°37′30″

R. 27 E. — R. 28 E.

T. 25 N.

GRANT COUNTY

Canyon

Haynes

BANKS LAKE

GRAND COULEE

Joins sheet 122 Saint Andrews SE

Joins sheet 124 Mold SE

Joins sheet 139 Park Lake NE

Joins sheet 140 Coulee City NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

106	107	108
122		124
139	140	

106 SAINT ANDREWS NE
107 MOLD NW
108 MOLD NE
122 SAINT ANDREWS SE
124 MOLD SE
139 PARK LAKE NE
140 COULEE CITY NW

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MOLD SW, WASHINGTON

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
MOLD SE QUADRANGLE
SHEET NUMBER 124 OF 184

Joins sheet 108 Mold NE



Joins sheet 123 Mold SW

Joins sheet 140 Coulee City NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

107	108	
123		
140		

107 MOLD NW
108 MOLD NE
123 MOLD SW
140 COULEE CITY NW

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DOUGLAS COUNTY, WASHINGTON
ROCKY REACH DAM NE QUADRANGLE
SHEET NUMBER 125 OF 184

Joins sheet 109 Entiat SW

120°18′45″ 120°15′00″
47°37′30″ 47°33′45″
702 000m E 703 704 705 706
5277 5276 000m N 5275 5274 5273 5272 5271 000m N
52 78 52 77 000m N 52 76 52 75 52 74 52 73 52 72 000m N



Joins sheet 126 Orondo NW

T. 24 N.
R. 21 E.

703 000m E 704 705 706
120°18′45″ 120°15′00″
47°33′45″

Joins sheet 141 Rocky Reach Dam SE

Joins sheet 142 Orondo SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

		109 ENTIAT SW
		126 ORONDO NW
	141	142 ROCKY REACH DAM SE 142 ORONDO SW

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ROCKY REACH DAM NE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ORONDO NW QUADRANGLE
SHEET NUMBER 126 OF 184

120°15′00″ — 120°11′15″ — 47°37′30″ — 47°33′45″

Joins sheet 109 Entiat SW
Joins sheet 110 Entiat SE
Joins sheet 125 Rocky Reach Dam NE
Joins sheet 127 Orondo NE
Joins sheet 141 Rocky Reach Dam SE
Joins sheet 142 Orondo SW
Joins sheet 143 Orondo SE

707 000m E — 708 — 709 — R. 21 E. — 710 — 711

5278 — 5277 000m N — 5276 — 5275 — 5274 — 5273 — 5272 000m N

T. 25 N. — T. 24 N.

Orondo

CHELAN COUNTY — LAKE ENTIAT — COLUMBIA RIVER

97 — 2

32 — 33 — 34 — 3 — 4 — 5 — 8 — 9 — 10 — 15 — 16 — 17 — 18 — 19 — 20 — 21 — 22

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	109	110	109 ENTIAT SW 110 ENTIAT SE
125		127	125 ROCKY REACH DAM NE 127 ORONDO NE
141	142	143	141 ROCKY REACH DAM SE 142 ORONDO SW 143 ORONDO SE

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ORONDO NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
ORONDO NE QUADRANGLE
SHEET NUMBER 127 OF 184

Joins sheet 110 Entiat SE

120°11'15" 120°07'30"

47°37'30"

R. 21 E. R. 22 E.

T. 25 N.

T. 24 N.

12 000mE 713 714 715 716

5278 5277 000mN 5276 5275 5274 5273 5272 000mN

47°33'45"

34 35 36 31 3 2 1 6 11 12 7 10 14 13 18 15 23 24 19 22

BADGER MOUNTAIN

McGinnis Canyon Road

Joins sheet 126 Orondo NW

Joins sheet 128 Douglas NW

Joins sheet 142 Orondo SW

Joins sheet 143 Orondo SE

Joins sheet 144 Douglas SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

109	110	111
126		128
142	143	144

109 ENTIAT SW
110 ENTIAT SE
111 WATERVILLE SW
126 ORONDO NW
128 DOUGLAS NW
142 ORONDO SW
143 ORONDO SE
144 DOUGLAS SW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
DOUGLAS NW QUADRANGLE
SHEET NUMBER 128 OF 184

120°07′30″ — 716 000mE — 717 — 718 — R. 22 E. — 719 — 720 — 120°03′45″

47°37′30″

5278

5277 000mN

T. 25 N.

T. 24 N.

5276

5275

5274

5273

5272 000mN

47°33′45″

717 000mE

721

31 32 33 34 WATERVILLE PLATEAU

5 4 3 6 7 8 9 10 15 16 17 18 19 20 21 22

Canyon

McGinnis

Canyon

Ruud

BADGER MOUNTAIN

Joins sheet 127 Orondo NE

Joins sheet 129 Douglas NE

Joins sheet 144 Douglas SW

Joins sheet 143 Orondo SE

Joins sheet 145 Douglas SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

110	111	112
127		129
143	144	145

110 ENTIAT SE
111 WATERVILLE SW
112 WATERVILLE SE
127 ORONDO NE
129 DOUGLAS NE
143 ORONDO SE
144 DOUGLAS SW
145 DOUGLAS SE

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DOUGLAS NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 128 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 111 Waterville SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
DOUGLAS NE QUADRANGLE
SHEET NUMBER 129 OF 184

Joins sheet 112 Waterville SE

Joins sheet 113 Lamoine SW

120° 03′ 45″ — 120° 00′ 00″

47° 37′ 30″ — 47° 33′ 45″

7 21 000mE — 7 22 — 7 23 — 7 24 — 7 25

R. 22 E. — R. 23 E.

5278 — 5277 000mN — 5276 — 5275 — 5274 — 5273 — 5272 000mN

T. 25 N. — T. 24 N.

WATERVILLE PLATEAU

Douglas

Douglas Creek

Paine Creek

34 35 36 31

3 2 1 6

10 11 12 7

15 14 13 18

22 23 24 19

Joins sheet 128 Douglas NW

Joins sheet 130 Alstown NW

Joins sheet 144 Douglas SW

Joins sheet 145 Douglas SE

Joins sheet 146 Alstown SW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 10.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

111	112	113	111 WATERVILLE SW 112 WATERVILLE SE 113 LAMOINE SW
128		130	128 DOUGLAS NW 130 ALSTOWN NW
144	145	146	144 DOUGLAS SW 145 DOUGLAS SE 146 ALSTOWN SW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ALSTOWN NW QUADRANGLE
SHEET NUMBER 130 OF 184

120°00′00″ 119°56′15″ 47°37′30″ 47°33′45″

ALSTOWN NE

R. 23 E.

T. 25 N. T. 24 N.

Douglas Alstown Creek

Joins sheet 129 Douglas NE

Joins sheet 131 Alstown NE

Joins sheet 145 Douglas SE

Joins sheet 146 Alstown SW

Joins sheet 147 Alstown SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

112	113	114	112 WATERVILLE SE 113 LAMOINE SW 114 LAMOINE SE
129		131	129 DOUGLAS NE 131 ~~145 DOUGLAS SE~~
145	146	147	146 ALSTOWN SW 147 ALSTOWN SE

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ALSTOWN NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 146 Alstown SW

Joins sheet 113 Lamoine SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 114 Lamoine SE

DOUGLAS COUNTY, WASHINGTON
ALSTOWN NE QUADRANGLE
SHEET NUMBER 131 OF 184

Joins sheet 115 Withrow SW

119°56'15" 119°52'30"
47°37'30" 47°33'45"
280000m E 279000mE
5277000mN 5272000mN
R. 23 E. R. 24 E.
T. 25 N. T. 24 N.

Joins sheet 130 Alstown NW
Joins sheet 132 Farmer NW
Joins sheet 146 Alstown SW
Joins sheet 147 Alstown SE
Joins sheet 148 Farmer SW

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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

113	114	115	113 LAMOINE SW 114 LAMOINE SE 115 WITHROW SW
130		132	130 ALSTOWN NW 132 FARMER NW
146	147	148	146 ALSTOWN SW 147 ALSTOWN SE 148 FARMER SW

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ALSTOWN NE, WASHINGTON
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DOUGLAS COUNTY, WASHINGTON
FARMER NW QUADRANGLE
SHEET NUMBER 132 OF 184

Joins sheet 114 Lamoine SE

Joins sheet 115 Withrow SW

Joins sheet 116 Withrow SE

119°52′30″ — 119°48′45″

47°37′30″ — 47°33′45″

R. 24 E.

T. 25 N.

T. 24 N.

Farmer

Joins sheet 131 Alstown NE

Joins sheet 133 Farmer NE

Joins sheet 147 Alstown SE

Joins sheet 148 Farmer SW

Joins sheet 149 Farmer SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

114	115	116	114 LAMOINE SE 115 WITHROW SW 116 WITHROW SE
131		133	131 ALSTOWN NE 133 FARMER NE
147	148	149	147 ALSTOWN SE 148 FARMER SW 149 FARMER SE

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FARMER NW, WASHINGTON
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SHEET NUMBER 132 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
FARMER NE QUADRANGLE
SHEET NUMBER 133 OF 184

119°48′45″ 119°45′00″ 47°37′30″ 47°33′45″

R. 24 E.

T. 25 N. T. 24 N.

5277000mN 5272000mN

Joins sheet 132 Farmer NW
Joins sheet 134 Jameson Lake SW NW
Joins sheet 148 Farmer SW
Joins sheet 149 Farmer SE
Joins sheet 150 Jameson Lake SW SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

115	116	117	115 WITHROW SW 116 WITHROW SE 117 JAMESON LAKE WEST SW
132		134	132 FARMER NW 134 JAMESON LAKE SW NW
148	149	150	148 FARMER SW 149 FARMER SE 150 JAMESON LAKE SW SW

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FARMER NE, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 116 Withrow SE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 117 Jameson Lake West SW

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SW NW QUADRANGLE
SHEET NUMBER 134 OF 184

Joins sheet 118 Jameson Lake West SE

119° 45′ 00″ — R. 24 E. — R. 25 E. — 294 000m E — 295 — 296 — 297 — 298 — 119° 41′ 15″

47° 37′ 30″ — 5278 — 5277 000m N — 5276 — 5275 — 5274 — 5273 — 5272 000m N — 5271 000m N — 52 77 — 52 76 — 52 75 — 52 74 — 52 73 — 52 72 — 47° 33′ 45″

T. 25 N. — T. 24 N.

Joins sheet 133 Farmer NE

Joins sheet 135 Jameson Lake SW NE

Joins sheet 149 Farmer SE

Joins sheet 150 Jameson Lake SW SW

Joins sheet 151 Jameson Lake SW SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

116	117	118	116 WITHROW SE 117 JAMESON LAKE WEST SW 118 JAMESON LAKE WEST SE
133		135	133 FARMER NE 135 JAMESON LAKE SW NE
149	150	151	149 FARMER SE 150 JAMESON LAKE SW SW 151 JAMESON LAKE SW SE

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JAMESON LAKE SW NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 117 Jameson Lake West SW

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SW NE QUADRANGLE
SHEET NUMBER 135 OF 184

Joins sheet 119 Jameson Lake East SW

Joins sheet 118 Jameson Lake West SE

119° 41′15″ — 119° 37′30″ — 47° 37′30″ — 47° 33′45″

298 000m E — 299 — 300 — R. 25 E. — 301 — 302

5277 — 5276 000m N — 5275 — 5274 — 5273 — 5272 — 5271 000m N

T. 25 N. — T. 24 N.

52 77 — 52 76 — 52 75 — 52 74 — 52 73 — 52 72 — 52 71 000m N

Sulphur Canyon

McCartney Creek

COULEE MOSES Creek

Joins sheet 134 Jameson Lake SW NW

Joins sheet 136 Jameson Lake SE NW

Joins sheet 150 Jameson Lake SW SW

Joins sheet 151 Jameson Lake SW SE

Joins sheet 152 Jameson Lake SE SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

117	118	119	117 JAMESON LAKE WEST SW 118 JAMESON LAKE WEST SE 119 JAMESON LAKE EAST SW
134		136	134 JAMESON LAKE SW NW 136 JAMESON LAKE SE NW
150	151	152	150 JAMESON LAKE SW SW 151 JAMESON LAKE SW SE 152 JAMESON LAKE SE SW

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SE NW QUADRANGLE
SHEET NUMBER 136 OF 184

Joins sheet 118 Jameson Lake West SE
Joins sheet 119 Jameson Lake East SW
Joins sheet 120 Jameson Lake East SE
Joins sheet 135 Jameson Lake SW NE
Joins sheet 137 Jameson Lake SE NE
Joins sheet 151 Jameson Lake SW SE
Joins sheet 152 Jameson Lake SE SW
Joins sheet 153 Jameson Lake SE SE

119°37′30″ 119°33′45″
47°37′30″ 47°33′45″
R. 25 E. R. 26 E.
303 000m E 304 305 306 307
5277 5276 000m N 5275 5274 5273 5272 5271 000m N
T. 25 N. T. 24 N.

Sulphur Canyon
ROAD
WHITEHALL

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

NORTH

QUARTER QUADRANGLE LOCATION

118	119	120	118 JAMESON LAKE WEST SE 119 JAMESON LAKE EAST SW 120 JAMESON LAKE EAST SE
135		137	135 JAMESON LAKE SW NE 137 JAMESON LAKE SE NE
151	152	153	151 JAMESON LAKE SW SE 152 JAMESON LAKE SE SW 153 JAMESON LAKE SE SE

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JAMESON LAKE SE NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 119 Jameson Lake East SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 120 Jameson Lake East SE

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SE NE QUADRANGLE
SHEET NUMBER 137 OF 184

Joins sheet 121 Saint Andrews SW

119° 33′ 45″ — 119° 30′ 00″ — 47° 37′ 30″ — 47° 33′ 45″

308 000m E — 309 — R. 26 E. — 310 — 311 — 312

5276 000m N — 5275 — 5274 — 5273 — 5272 — 5271 000m N

T. 25 N. — T. 24 N.

52 77 — 52 76 — 52 75 — 52 74 — 52 73 — 52 72

Joins sheet 136 Jameson Lake SE NW

Joins sheet 138 Park Lake NW

Joins sheet 152 Jameson Lake SE SW

Joins sheet 153 Jameson Lake SE SE

Joins sheet 154 Park Lake SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

119	120	121	119 JAMESON LAKE EAST SW 120 JAMESON LAKE EAST SE 121 SAINT ANDREWS SW
136		138	136 JAMESON LAKE SE NW 138 PARK LAKE NW
152	153	154	152 JAMESON LAKE SE SW 153 JAMESON LAKE SE SE 154 PARK LAKE SW

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Joins sheet 120 Jameson Lake East SE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
PARK LAKE NW QUADRANGLE
SHEET NUMBER 138 OF 184

Joins sheet 121 Saint Andrews SW

Joins sheet 122 Saint Andrews SE

119° 30′ 00″ — R. 26 E. — 313 000mE — R. 27 E. — 314 — 315 — 316 — 119° 26′ 15″

47° 37′ 30″ — 5277 — T. 25 N. — 5276 000mN — T. 24 N. — 5275 — 5274 — 5273 — 5272 — 5271 000mN — 47° 33′ 45″

52 77 — 52 75 — 52 74 — 52 73 — 52 72

Joins sheet 137 Jameson Lake SE NE

Joins sheet 139 Park Lake NE

Joins sheet 153 Jameson Lake SE SE

Joins sheet 154 Park Lake SW

Dear Canyon

Granny Draw

Churchill Draw

Cook Draw

GRAND COULEE

GRANT COUNTY

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

120	121	122	120 JAMESON LAKE EAST SE 121 SAINT ANDREWS SW 122 SAINT ANDREWS SE
137		139	137 JAMESON LAKE SE NE 139 PARK LAKE NE
153	154		153 JAMESON LAKE SE SE 154 PARK LAKE SW

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PARK LAKE NW, WASHINGTON

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Joins sheet 121 Saint Andrews SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 122 Saint Andrews SE

DOUGLAS COUNTY, WASHINGTON
PARK LAKE NE QUADRANGLE
SHEET NUMBER 139 OF 184

Joins sheet 123 Mold SW

119° 26′ 15″ — 119° 22′ 30″ — 47° 37′ 30″ — 47° 33′ 45″

317 000mE — 318 — 319 — R. 27 E. — 320 — 321

5277 — 5276 000mN — 5275 — 5274 — 5273 — 5272 — 5271 000mN

52 77 — 52 76 — 52 75 — 52 74 — 52 73 — 52 72

T. 25 N. — T. 24 N.

GRANT COUNTY

Deer Canyon

Joins sheet 138 Park Lake NW

Joins sheet 140 Coulee City NW

Joins sheet 154 Park Lake SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

121	122	123	121 SAINT ANDREWS SW 122 SAINT ANDREWS SE 123 MOLD SW
138		140	138 PARK LAKE NW 140 COULEE CITY NW
154			154 PARK LAKE SW

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PARK LAKE NE, WASHINGTON
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Joins sheet 122 Saint Andrews SE

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DOUGLAS COUNTY, WASHINGTON
COULEE CITY NW QUADRANGLE
SHEET NUMBER 140 OF 184

Joins sheet 123 Mold SW

Joins sheet 124 Mold SE

Joins sheet 139 Park Lake NE

119°22′30″ — 119°18′45″ — 47°37′30″ — 47°33′45″

322 000m E — 323 — 324 — 325 — 326

R. 27 E. — R. 28 E.

T. 25 N.

5277 — 5276 000m N — 5275 — 5274 — 5273 — 5272 — 5271 000m N

52 77 — 52 75 — 52 74 — 52 73 — 52 72 — 52 71 000m N

GRANT COUNTY

36 — 31

Richard Lake

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

122	123	124
139		

122 SAINT ANDREWS SE
123 MOLD SW
124 MOLD SE
139 PARK LAKE NE

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COULEE CITY NW, WASHINGTON

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DOUGLAS COUNTY, WASHINGTON
ROCKY REACH DAM SE QUADRANGLE
SHEET NUMBER 141 OF 184

120°18′45″ 120°15′00″ 47°33′45″ 47°30′00″

Joins sheet 125 Rocky Reach Dam NE

Joins sheet 126 Orondo NW

703 000m E 704 705 R. 20 E. 706 R. 21 E. 707

5270 5269 000m N 5268 5267 5266 5265 000m N 5264 000m N

52 71 52 70 000m N 52 69 52 68 52 67 52 66 52 65 000m N

T. 24 N. T. 23 N.

CHELAN COUNTY

LAKE ENTIAT

RIVER

COLUMBIA

Rocky Reach Dam

Turtle Rock

Flats

Baker

19 30 35 36 31 2 1 6 12 11 7

Joins sheet 142 Orondo SW

Joins sheet 155 Wenatchee NW

Joins sheet 156 Wenatchee NE

Joins sheet 157 Rock Island NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	125	126
		142
155	156	157

125 ROCKY REACH DAM NE
126 ORONDO NW
142 ORONDO SW
155 WENATCHEE NW
156 WENATCHEE NE
157 ROCK ISLAND NW

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ROCKY REACH DAM SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 125 Rocky Reach Dam NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 126 Orondo NW

DOUGLAS COUNTY, WASHINGTON
ORONDO SW QUADRANGLE
SHEET NUMBER 142 OF 184

Joins sheet 127 Orondo NE

120°15′00″ — 120°11′15″ — 47°33′45″ — 47°30′00″

707 000m E — 708 — 709 — R. 21 E. — 710 — 711

5271 — 5270 000m N — 5269 — 5268 — 5267 — 5266 — 5265 000m N

T. 24 N. — T. 23 N.

19 — 20 — 21 — 22
30 — 29 — 28 — 27
31 — 32 — 33 — 34
6 — 5 — 4 — 3
7 — 8 — 9 — 10

BADGER
MOUNTAIN
Badger Road
Creek

Joins sheet 141 Rocky Reach Dam SE

Joins sheet 143 Orondo SE

Joins sheet 156 Wenatchee NE

Joins sheet 157 Rock Island NW

Joins sheet 158 Rock Island NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

125	126	127
141		143
156	157	158

125 ROCKY REACH DAM NE
126 ORONDO NW
127 ORONDO NE
141 ROCKY REACH DAM SE
143 ORONDO SE
156 WENATCHEE NE
157 ROCK ISLAND NW
158 ROCK ISLAND NE

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3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 126 Orondo NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 127 Orondo NE

DOUGLAS COUNTY, WASHINGTON
ORONDO SE QUADRANGLE
SHEET NUMBER 143 OF 184

Joins sheet 128 Douglas NW

120°11'15" 712 000mE 713 714 715 R. 21 E. R. 22 E. 716 120°07'30"

47°33'45"

5271

5270 000mN

5269

5268

5267

5266

5265 000mN

47°30'00"

T. 24 N.

T. 23 N.

BADGER MOUNTAIN

Rock Island Creek

22 23 24 19
27 26 25 30
34 35 36 31
3 2 1 6
10 11 12 7

Joins sheet 142 Orondo SW

Joins sheet 144 Douglas SW

Joins sheet 157 Rock Island NW

Joins sheet 158 Rock Island NE

Joins sheet 159 Malaga Northeast NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

126	127	128
142		144
157	158	159

126 ORONDO NW
127 ORONDO NE
128 DOUGLAS NW
142 ORONDO SW
144 DOUGLAS SW
157 ROCK ISLAND NW
158 ROCK ISLAND NE
159 MALAGA NORTHEAST NW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 127 Orondo NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 128 Douglas NW

DOUGLAS COUNTY, WASHINGTON
DOUGLAS SW QUADRANGLE
SHEET NUMBER 144 OF 184

Joins sheet 129 Douglas NE

120° 07′ 30″ — 120° 03′ 45″ — 47° 33′ 45″ — 47° 30′ 00″

717 000mE — 718 — R. 22 E. — 719 — 720 — 721

5271 — 5270 000mN — 5269 — 5268 — 5267 — 5266 — 5265 000mN

T. 24 N. — T. 23 N.

BADGER MOUNTAIN — Bevington Canyon — Rock Island Ck

Joins sheet 143 Orondo SE

Joins sheet 145 Douglas SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

127	128	129	127 ORONDO NE 128 DOUGLAS NW 129 DOUGLAS NE
143		145	143 ORONDO SE 145 DOUGLAS SE
158	159	160	158 ROCK ISLAND NE 159 MALAGA NORTHEAST NW 160 MALAGA NORTHEAST NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 158 Rock Island NE

Joins sheet 159 Malaga Northeast NW

Joins sheet 160 Malaga Northeast NE

Joins sheet 129 Douglas NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 129 Douglas NE

DOUGLAS COUNTY, WASHINGTON
DOUGLAS SE QUADRANGLE
SHEET NUMBER 145 OF 184

Joins sheet 130 Alstown NW

120° 03′ 45″ — 120° 00′ 00″ — 47° 33′ 45″ — 47° 30′ 00″

722 000mE — 723 — 724 — 725 — 726

R. 22 E. — R. 23 E.

527 1 — 527 000mN — 526 9 — 526 8 — 526 7 — 526 6 — 526 5 000mN

T. 24 N. — T. 23 N.



Joins sheet 144 Douglas SW

Joins sheet 146 Alstown SW

Joins sheet 159 Malaga Northeast NW

Joins sheet 160 Malaga Northeast NE

Joins sheet 161 Palisades NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

128	129	130	128 DOUGLAS NW 129 DOUGLAS NE 130 ALSTOWN NW
144		146	144 DOUGLAS SW 146 ALSTOWN SW
159	160	161	159 MALAGA NORTHEAST NW 160 MALAGA NORTHEAST NE 161 PALISADES NW

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DOUGLAS COUNTY, WASHINGTON
ALSTOWN SW QUADRANGLE
SHEET NUMBER 146 OF 184

120° 00′ 00″ — 119° 56′ 15″ — 47° 33′ 45″ — 47° 30′ 00″

275 000m E — 276 — 277 — 278 — 279

5271 — 5270 000m N — 5269 — 5268 — 5267 — 5266 — 5265 000m N

52 71 — 52 70 — 52 69 — 52 68 — 52 67 — 52 66

R. 23 E.

T. 24 N. — T. 23 N.

Alstown — Douglas Creek

19 — 20 — 21 — 22 — 30 — 29 — 28 — 27 — 31 — 32 — 33 — 34 — 6 — 5 — 4 — 3 — 7 — 8 — 9 — 10

Joins sheet 145 Douglas SE

Joins sheet 147 Alstown SE

Joins sheet 160 Malaga Northeast NE

Joins sheet 161 Palisades NW

Joins sheet 162 Palisades NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

129	130	131
145		147
160	161	162

129 DOUGLAS NE
130 ALSTOWN NW
131 ALSTOWN NE
145 DOUGLAS SE
147 ALSTOWN SE
~~160 MALAGA NORTHEAST NE~~
161 PALISADES NW
162 PALISADES NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 130 Alstown NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 131 Alstown NE

DOUGLAS COUNTY, WASHINGTON
ALSTOWN SE QUADRANGLE
SHEET NUMBER 147 OF 184

Joins sheet 132 Farmer NW

119°56'15" 279 000m E 280 281 R. 23 E. 282 283 119°52'30"

47°33'45"

52 71

5271 000m N

52 69

52 68

T. 24 N.
T. 23 N.

52 67

52 66

52 65 000m N

47°30'00"

Canyon
Mohr
Douglas Creek

Joins sheet 146 Alstown SW

Joins sheet 148 Farmer SW

Joins sheet 161 Palisades NW

Joins sheet 162 Palisades NE

Joins sheet 163 Rattlesnake Springs NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

130	131	132	130 ALSTOWN NW 131 ALSTOWN NE 132 FARMER NW
146		148	146 ALSTOWN SW 148 FARMER SW
161	162	163	161 PALISADES NW 162 PALISADES NE 163 RATTLESNAKE SPRINGS NW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 131 Alstown NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 132 Farmer NW

DOUGLAS COUNTY, WASHINGTON
FARMER SW QUADRANGLE
SHEET NUMBER 148 OF 184

Joins sheet 133 Farmer NE

119°52′30″ 119°48′45″ 47°33′45″ 47°30′00″

284,000m E 285 R. 24 E. 286 287 288

5271 5270,000mN 5269 5268 5267 5266 5265,000mN

52 71 52 69 52 68 52 67 52 66

T. 24 N. T. 23 N.

19 20 21 30 29 28 31 32 33 6 5 4 7 8 9

Pine Canyon

Joins sheet 147 Alstown SE

Joins sheet 149 Farmer SE

Joins sheet 162 Palisades NE

Joins sheet 163 Rattlesnake Springs NW

Joins sheet 164 Rattlesnake Springs NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

131	132	133
147		149
162	163	164

INDEX TO ADJOINING 3.75 MAPS

131 ALSTOWN NE
132 FARMER NW
133 FARMER NE
147 ALSTOWN SE
149 FARMER SE
162 PALISADES NE
163 RATTLESNAKE SPRINGS NW
164 RATTLESNAKE SPRINGS NE

FARMER SW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

119° 48′ 45″ — 289 000m E — 290 — R. 24 E. — 291 — 292 — 293 — 119° 45′ 00″

47° 33′ 45″ — 5271 — 5270 000m N — 52 71 — 52 70 — 52 69 — 52 68 — 52 67 — 52 66 — 52 65 000m N — 47° 30′ 00″

T. 24 N. — T. 23 N.

Sections: 22, 23, 24, 27, 26, 25, 34, 35, 36, 3, 2, 1, 10, 11, 12

Pine Canyon — COULEE MOSES

Joins sheet 148 Farmer SW

Joins sheet 150 Jameson Lake SW SW

Joins sheet 163 Rattlesnake Springs NW

Joins sheet 164 Rattlesnake Springs NE

Joins sheet 165 Sagebrush Flat NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

132	133	134	132 FARMER NW 133 FARMER NE 134 JAMESON LAKE SW NW
148		150	148 FARMER SW 150 JAMESON LAKE SW SW
163	164	165	163 RATTLESNAKE SPRINGS NW 164 RATTLESNAKE SPRINGS NE 165 SAGEBRUSH FLAT NW

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FARMER SE, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SW SW QUADRANGLE
SHEET NUMBER 150 OF 184

119° 45′ 00″ R. 24 E. R. 25 E. 294 000m E 295 296 297 119° 41′ 15″

47° 33′ 45″ 5271 5270 000m N 5269 5268 5267 5266 5265 000m N 47° 30′ 00″

52 70 52 69 000m N 52 68 52 67 52 66 52 65 52 64 000m N 47° 30′ 00″

T. 24 N. T. 23 N.

Joins sheet 149 Farmer SE

Joins sheet 151 Jameson Lake SW SE

Joins sheet 164 Rattlesnake Springs NE

Joins sheet 165 Sagebrush Flat NW

Joins sheet 166 Sagebrush Flat NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

133	134	135
149		151
164	165	166

133 FARMER NE
134 JAMESON LAKE SW NW
135 JAMESON LAKE SW NE
149 FARMER SE
151 JAMESON LAKE SW SE
164 RATTLESNAKE SPRINGS NE
165 SAGEBRUSH FLAT NW
166 SAGEBRUSH FLAT NE

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SW SE QUADRANGLE
SHEET NUMBER 151 OF 184

119° 41′ 15″ — 119° 37′ 30″ — 47° 33′ 45″ — 47° 30′ 00″

Joins sheet 134 Jameson Lake SW NW
Joins sheet 135 Jameson Lake SW NE
Joins sheet 136 Jameson Lake SE NW
Joins sheet 150 Jameson Lake SW SW
Joins sheet 152 Jameson Lake SE SW
Joins sheet 165 Sagebrush Flat NW
Joins sheet 166 Sagebrush Flat NE
Joins sheet 167 Little Soap Lake NW

R. 25 E.

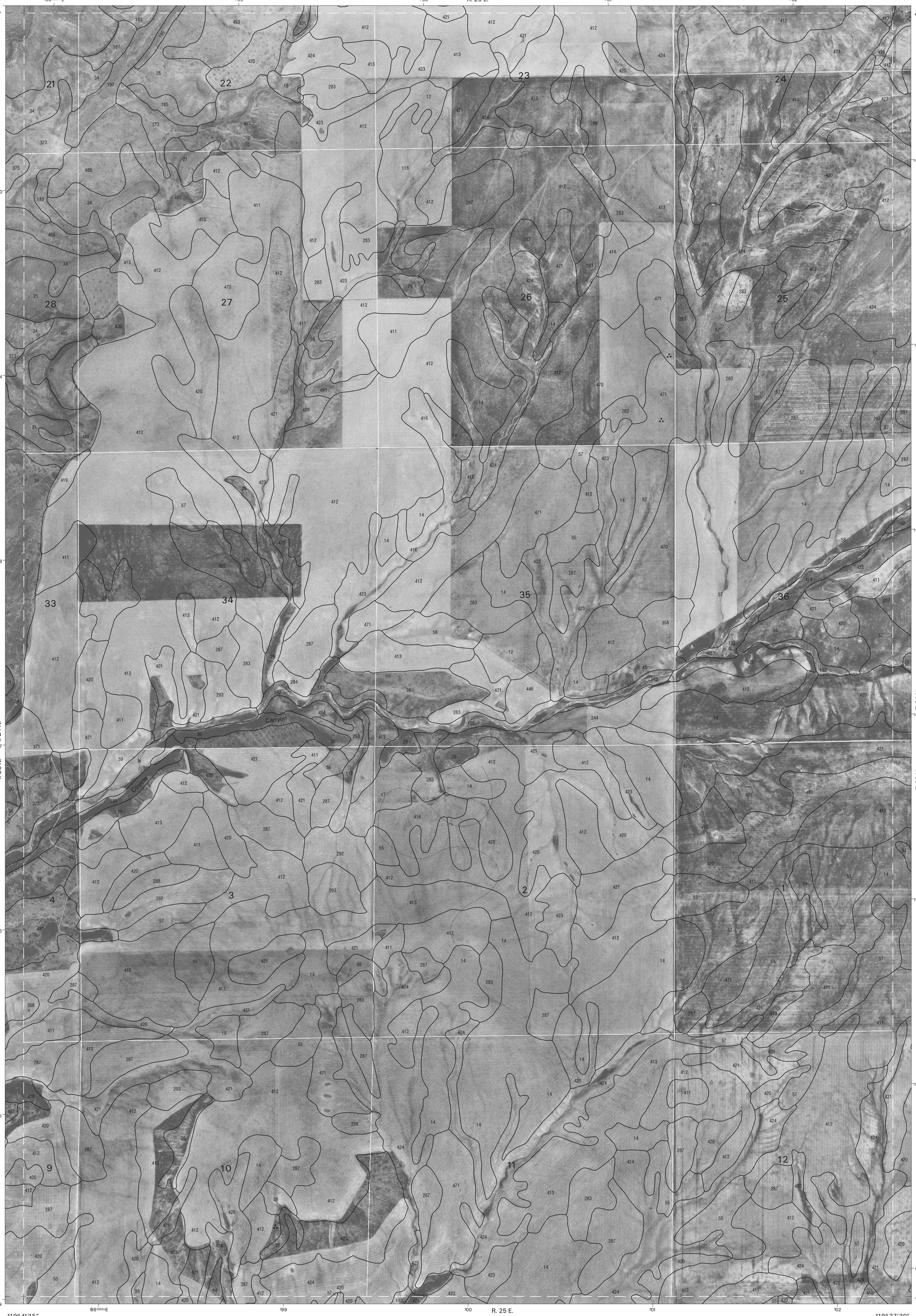
298 000m E — 299 — 300 — 301 — 302

5270 — 5269 000m N — 5268 — 5267 — 5266 — 5265 — 5264 000m N

T. 24 N. — T. 23 N.

Canyon — Coyote

21 22 23 24 25 26 27 28 33 34 35 36 4 3 2 1 9 10 11 12



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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

134	135	136
150		152
165	166	167

134 JAMESON LAKE SW NW
135 JAMESON LAKE SW NE
136 JAMESON LAKE SE NW
150 JAMESON LAKE SW SW
152 JAMESON LAKE SE SW
165 SAGEBRUSH FLAT NW
166 SAGEBRUSH FLAT NE
167 LITTLE SOAP LAKE NW

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DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SE SW QUADRANGLE
SHEET NUMBER 152 OF 184

119°37′30″ — 119°33′45″

Joins sheet 135 Jameson Lake SW NE

Joins sheet 136 Jameson Lake SE NW

Joins sheet 137 Jameson Lake SE NE

Joins sheet 151 Jameson Lake SW SE

Joins sheet 153 Jameson Lake SE SE

Joins sheet 166 Sagebrush Flat NE

Joins sheet 167 Little Soap Lake NW

Joins sheet 168 Little Soap Lake NE



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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

135	136	137	135 JAMESON LAKE SW NE 136 JAMESON LAKE SE NW 137 JAMESON LAKE SE NE
151		153	151 JAMESON LAKE SW SE 153 JAMESON LAKE SE SE
166	167	168	166 SAGEBRUSH FLAT NE 167 LITTLE SOAP LAKE NW 168 LITTLE SOAP LAKE NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 136 Jameson Lake SE NW

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 137 Jameson Lake SE NE

DOUGLAS COUNTY, WASHINGTON
JAMESON LAKE SE SE QUADRANGLE
SHEET NUMBER 153 OF 184

Joins sheet 138 Park Lake NW

119°33′45″ — 119°30′00″ — 47°33′45″ — 47°30′00″

R. 26 E.

T. 24 N. — T. 23 N.

GRANT COUNTY

Joins sheet 152 Jameson Lake SE SW

Joins sheet 154 Park Lake SW

Joins sheet 167 Little Soap Lake NW

Joins sheet 168 Little Soap Lake NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

136	137	138
152		154
167	168	

136 JAMESON LAKE SE NW
137 JAMESON LAKE SE NE
138 PARK LAKE NW
152 JAMESON LAKE SE SW
154 PARK LAKE SW
167 LITTLE SOAP LAKE NW
168 LITTLE SOAP LAKE NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 137 Jameson Lake SE NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 138 Park Lake NW

DOUGLAS COUNTY, WASHINGTON
PARK LAKE SW QUADRANGLE
SHEET NUMBER 154 OF 184

Joins sheet 139 Park Lake NE

119°30′00″ 119°26′15″

312 000mE 313 314 315 316

47°33′45″

R. 26 E. R. 27 E.

T. 24 N.

5269 000mN

5270 5268 5267 5266 5265 5264 000mN

52 70 52 69 000mN 52 68 52 67 52 66 52 65 52 64 000mN

47°30′00″

312 000mE 313 314 315 316

119°30′00″ 119°26′15″

Joins sheet 153 Jameson Lake SE SE

Joins sheet 168 Little Soap Lake NE

Cook Draw
Hybal
Canyon
GRANT COUNTY
GRANT COUNTY

19 24 25

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

137	138	139	137 JAMESON LAKE SE NE 138 PARK LAKE NW 139 PARK LAKE NE
153			153 JAMESON LAKE SE SE
168			168 LITTLE SOAP LAKE NE

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
WENATCHEE NW QUADRANGLE
SHEET NUMBER 155 OF 184

Joins sheet 141 Rocky Reach Dam SE

120° 22′ 30″ — 698 000m E — 699 — 700 — 701 — 702 — R. 20 E. 120° 18′ 45″

47° 30′ 00″ — 52 64

5263 — 5263 000m N

5262 000m N — 52 62

5261 — 52 61

5260 — 52 60

5259 — 52 59

5258 — 5258 000m N

5257 000m N

47° 26′ 15″ — 47° 26′ 15″

698 000m E — 699 — 700 — 701 — 702 — R. 20 E. 120° 18′ 45″

COLUMBIA RIVER

CHELAN COUNTY

T. 23 N.

22

27

2 — 97

Joins sheet 156 Wenatchee NE

Joins sheet 169 Wenatchee SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

141 ROCKY REACH DAM SE
156 WENATCHEE NE
169 WENATCHEE SE

WENATCHEE NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 155 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WENATCHEE NE QUADRANGLE
SHEET NUMBER 156 OF 184

120°18′45″ — 120°15′00″ — 47°30′00″ — 47°26′15″

703 000m E — 704 — 705 — 706 — 707

R. 20 E. — R. 21 E.

T. 23 N.

5263 000m N — 5262 — 5261 — 5260 — 5259 — 5258 000m N

Joins sheet 141 Rocky Reach Dam SE

Joins sheet 142 Orondo SW

Joins sheet 155 Wenatchee NW

Joins sheet 157 Rock Island NW

Joins sheet 169 Wenatchee SE

Joins sheet 170 Rock Island SW

CHELAN COUNTY

COLUMBIA RIVER

Baker Flats

FANCHER FIELD

BADGER MTN ROAD

10 11 12 7 15 14 13 18 22 23 24 19 27 26 25 30 34 35 36 31

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

	141	142
155		157
	169	170

141 ROCKY REACH DAM SE
142 ORONDO SW
155 WENATCHEE NW
157 ROCK ISLAND NW
169 WENATCHEE SE
170 ROCK ISLAND SW

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WENATCHEE NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND NW QUADRANGLE
SHEET NUMBER 157 OF 184

120°15′00″ — 120°11′15″ — 47°30′00″ — 47°26′15″

708 000m E — 709 — R. 21 E. — 710 — 711 — 712

52 64 — 52 63 000m N — 52 62 — 52 61 — 52 60 — 52 59 — 52 58 000m N

T. 23 N.

Joins sheet 156 Wenatchee NE

Joins sheet 158 Rock Island NE

Joins sheet 170 Rock Island SW

Joins sheet 169 Wenatchee SE

Joins sheet 171 Rock Island SE

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

141	142	143
156		158
169	170	171

141 ROCKY REACH DAM SE
142 ORONDO SW
143 ORONDO SE
156 WENATCHEE NE
158 ROCK ISLAND NE
169 WENATCHEE SE
170 ROCK ISLAND SW
171 ROCK ISLAND SE

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ROCK ISLAND NW, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND NE QUADRANGLE
SHEET NUMBER 158 OF 184

120°11'15" 712 000mE 713 714 715 R.21 E. 716 R. 22 E. 120°07'30"

47°30'00"

52 64

52 63 000mN

T. 23 N.

52 62

52 61

52 60

52 59

52 58 000mN

47°26'15"

BADGER MOUNTAIN

Beaver Creek

10 11 12 7
15 14 13 18
22 23 24 19
27 26 25 30
34 35 36 31

Joins sheet 157 Rock Island NW

Joins sheet 159 Malaga Northeast NW

Joins sheet 170 Rock Island SW

Joins sheet 171 Rock Island SE

Joins sheet 172 Malaga Northeast SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

142	143	144
157		159
170	171	172

142 ORONDO SW
143 ORONDO SE
144 DOUGLAS SW
157 ROCK ISLAND NW
159 MALAGA NORTHEAST NW
170 ROCK ISLAND SW
171 ROCK ISLAND SE
172 MALAGA NORTHEAST SW

INDEX TO ADJOINING 3.75 MAPS

ROCK ISLAND NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
MALAGA NE NW QUADRANGLE
SHEET NUMBER 159 OF 184

Joins sheet 144 Douglas SW

120° 07′ 30″ — 717 000mE — 718 — R. 22 E. — 719 — 720 — 721 — 120° 03′ 45″

47° 30′ 00″ — 52 64 — 52 63 000mN — 52 62 — 52 61 — 52 60 — 52 59 — 52 58 000mN — 47° 26′ 15″

T. 23 N.

Rock Island Creek — Bevington Canyon — Badger Mountain

7 8 9 10 15 16 17 18 19 20 21 22 27 28 29 30 31 32 33 34

BADGER MOUNTAIN

Joins sheet 158 Rock Island NE

Joins sheet 160 Malaga Northeast NE

Joins sheet 172 Malaga Northeast SW

Joins sheet 171 Rock Island SE

Joins sheet 173 Malaga Northeast SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

143	144	145	143 ORONDO SE 144 DOUGLAS SW 145 DOUGLAS SE
158		160	158 ROCK ISLAND NE 160 MALAGA NORTHEAST NE
171	172	173	171 ROCK ISLAND SE 172 MALAGA NORTHEAST SW 173 MALAGA NORTHEAST SE

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MALAGA NE NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 159 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
MALAGA NE NE QUADRANGLE
SHEET NUMBER 160 OF 184

120° 03′ 45″ — 120° 00′ 00″ — 47° 30′ 00″ — 47° 26′ 15″

7 22 000m E — 7 23 — 7 24 — 7 25 — 7 26

R. 22 E. — R. 23 E.

T. 23 N.

5264 — 5263 000m N — 5262 — 5261 — 5260 — 5259 — 5258 000m N

10 — 11 — 12 — 7 — 15 — 14 — 13 — 18 — 22 — 23 — 24 — 19 — 27 — 26 — 25 — 30 — 34 — 35 — 36 — 31

BADGER MOUNTAIN

Duffy Creek

Moses Stool

Sutherland Canyon

Joins sheet 159 Malaga Northeast NW

Joins sheet 161 Palisades NW

Joins sheet 172 Malaga Northeast SW

Joins sheet 173 Malaga Northeast SE

Joins sheet 174 Palisades SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

144	145	146	144 DOUGLAS SW 145 DOUGLAS SE 146 ALSTOWN SW
159		161	159 MALAGA NORTHEAST NW 161 PALISADES NW
172	173	174	172 MALAGA NORTHEAST SW 173 MALAGA NORTHEAST SE 174 PALISADES SW

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
PALISADES NW QUADRANGLE
SHEET NUMBER 161 OF 184

Joins sheet 146 Alstown SW

120° 00′ 00″ — 119° 56′ 15″ — 47° 30′ 00″ — 47° 26′ 15″

274 000m E — 275 — 276 — R. 23 E. — 277 — 278

52 64 — 52 63 000m N — 52 62 — 52 61 — 52 60 — 52 59 — 52 58 000m N

T. 23 N.

Creek — Duffy — BADGER — MOUNTAIN — Gulch — Hollow — Skookumchuck Canyon — Wood — Straight

Joins sheet 160 Malaga Northeast NE

Joins sheet 162 Palisades NE

Joins sheet 173 TRUE.

Joins sheet 174 Palisades SW

Joins sheet 175 Palisades SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

145	146	147	145 DOUGLAS SE 146 ALSTOWN SW 147 ALSTOWN SE
160		162	160 MALAGA NORTHEAST NE 162 PALISADES NE
173	174	175	173 TRUE. 174 PALISADES SW 175 PALISADES SE

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SHEET NUMBER 161 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
PALISADES NE QUADRANGLE
SHEET NUMBER 162 OF 184

119°56′15″ — 119°52′30″ — 47°30′00″ — 47°26′15″

279000m E — 280 — 281 — R. 23 E. — 282 — 283

5264 — 5263000m N — 5262 — 5261 — 5260 — 5259 — 5258000m N

52 64 — 52 63 — 52 62 — 52 61 — 52 60 — 52 59 — 52 58

T. 23 N.

10 11 12 7 15 14 13 22 23 24 27 26 25 34 35 36

Mohr Canyon — Douglas Creek — Reid Canyon — Airplane Canyon — Douglas Creek — COULEE MOSES — Skookumchuck Canyon

Joins sheet 161 Palisades NW

Joins sheet 163 Rattlesnake Springs NW

Joins sheet 174 Palisades SW

Joins sheet 175 Palisades SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

146	147	148	146 ALSTOWN SW 147 ALSTOWN SE 148 FARMER SW
161		163	161 PALISADES NW 163 RATTLESNAKE SPRINGS NW
174	175		174 PALISADES SW 175 PALISADES SE

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PALISADES NE, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 162 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
RATTLESNAKE SPRINGS NW QUADRANGLE
SHEET NUMBER 163 OF 184

Joins sheet 147 Alstown SE

Joins sheet 148 Farmer SW

Joins sheet 149 Farmer SE

Joins sheet 162 Palisades NE

Joins sheet 164 Rattlesnake Springs NE

Joins sheet 175 Palisades SE

119°52′30″ — 284000m E — 285 — R. 24 E. — 286 — 287 — 288 — 119°48′45″

47°30′00″ — 52 64 — 52 63 000m N — 52 62 — 52 61 — 52 60 — 52 59 — 47°26′15″ — 52 58 000m N

T. 23 N. — T. 22 N.

Canyon — Pegg — Douglas — Creek — COULEE — MOSES — GRANT COUNTY

7 8 9 16 17 18 19 20 21 28 29 30 31 32 33

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

147	148	149	147 ALSTOWN SE 148 FARMER SW 149 FARMER SE
162		164	162 PALISADES NE 164 RATTLESNAKE SPRINGS NE
175			175 PALISADES SE

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RATTLESNAKE SPRINGS NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 163 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

119° 48′ 45″ — 119° 45′ 00″ — 47° 30′ 00″ — 47° 26′ 15″

R. 24 E.

Joins sheet 163 Rattlesnake Springs NW

Joins sheet 165 Sagebrush Flat NW

T. 23 N.
T. 22 N.

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

148	149	150	148 FARMER SW 149 FARMER SE 150 JAMESON LAKE SW SW 163 RATTLESNAKE SPRINGS NW 165 SAGEBRUSH FLAT NW
163		165	

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RATTLESNAKE SPRINGS NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
SAGEBRUSH FLAT NW QUADRANGLE
SHEET NUMBER 165 OF 184

119° 45′ 00″ — R. 24 E. — 293 000m E — R. 25 E. — 294 — 295 — 296 — 297 — 119° 41′ 15″

47° 30′ 00″ — 52 64 — 52 63 000m N — 52 62 — 52 61 — 52 60 — 52 59 — 52 58 000m N — 47° 26′ 15″

Canyon
Coyote
Canyon

Joins sheet 164 Rattlesnake Springs NE

Joins sheet 166 Sagebrush Flat NE

SAGEBRUSH FLAT

GRANT COUNTY

GRANT COUNTY

T. 23 N.
T. 22 N.

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

149	150	151
164		166

149 FARMER SE
150 JAMESON LAKE SW SW
151 JAMESON LAKE SW SE
164 RATTLESNAKE SPRINGS NE
166 SAGEBRUSH FLAT NE

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SAGEBRUSH FLAT NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
SAGEBRUSH FLAT NE QUADRANGLE
SHEET NUMBER 166 OF 184

Joins sheet 150 Jameson Lake SW SW
Joins sheet 151 Jameson Lake SW SE
Joins sheet 152 Jameson Lake SE SW
Joins sheet 165 Sagebrush Flat NW
Joins sheet 167 Little Soap Lake NW

119° 41′ 15″ — 119° 37′ 30″ — 47° 30′ 00″ — 47° 26′ 15″

R. 25 E.

T. 23 N. — T. 22 N.

SAGEBRUSH FLAT

GRANT COUNTY

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

INDEX TO ADJOINING 3.75 MAPS

150	151	152	150 JAMESON LAKE SW SW 151 JAMESON LAKE SW SE 152 JAMESON LAKE SE SW
165		167	165 SAGEBRUSH FLAT NW 167 LITTLE SOAP LAKE NW

SAGEBRUSH FLAT NE, WASHINGTON
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UNITED STATES
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DOUGLAS COUNTY, WASHINGTON
LITTLE SOAP LAKE NW QUADRANGLE
SHEET NUMBER 167 OF 184

Joins sheet 151 Jameson Lake SW SE
Joins sheet 152 Jameson Lake SE SW
Joins sheet 153 Jameson Lake SE SE
Joins sheet 166 Sagebrush Flat NE
Joins sheet 168 Little Soap Lake NE

119°37′30″ 119°33′45″
47°30′00″ 47°26′15″
R. 25 E. R. 26 E.
T. 23 N.
303 000m E 304 305 306 307
5262 000m N 5257 000m N
52 63 52 62 52 61 52 60 52 59 52 58

GRANT COUNTY

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

151	152	153	151 JAMESON LAKE SW SE 152 JAMESON LAKE SE SW 153 JAMESON LAKE SE SE
166		168	166 SAGEBRUSH FLAT NE 168 LITTLE SOAP LAKE NE

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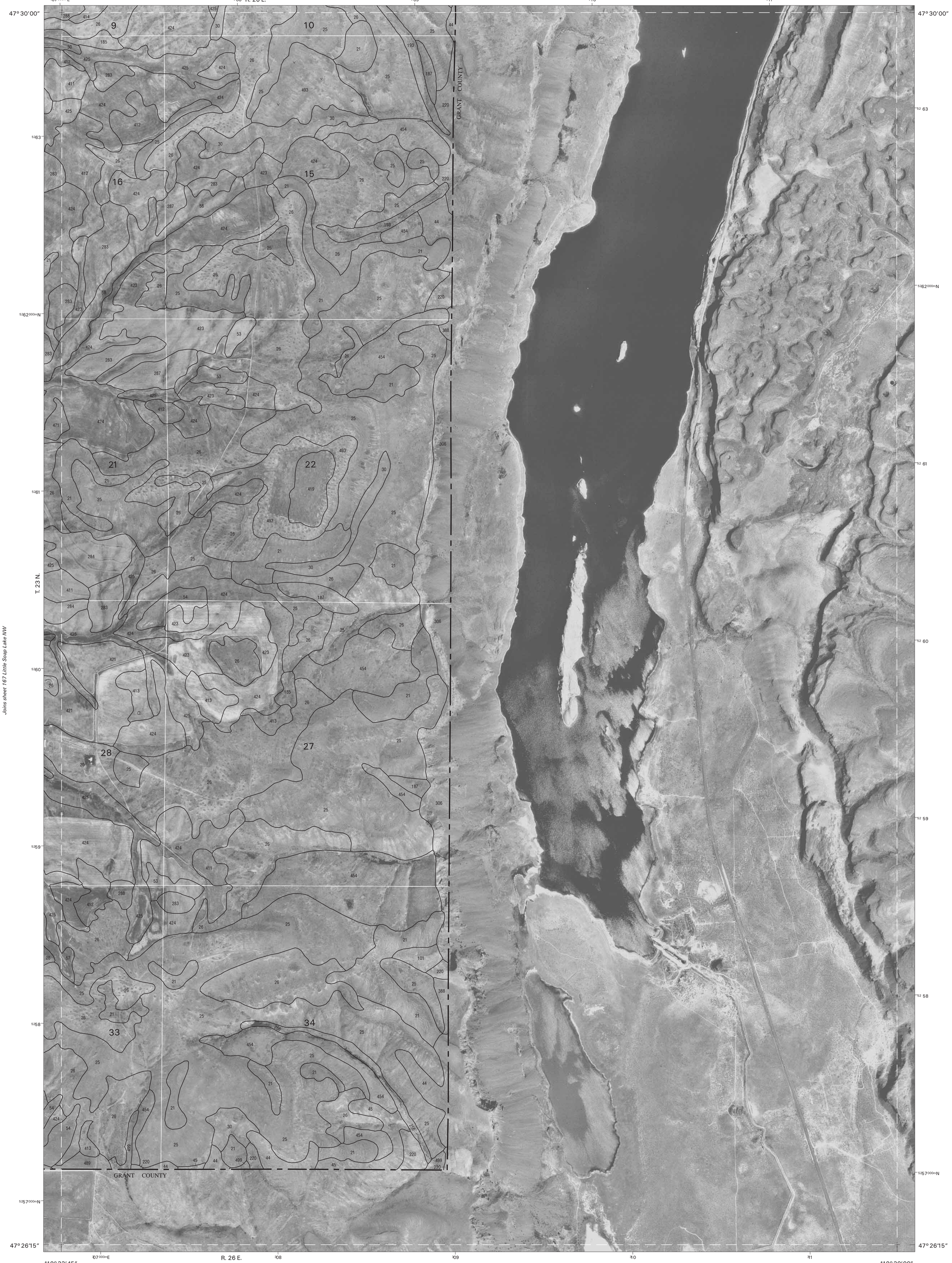
LITTLE SOAP LAKE NW, WASHINGTON

3.75 MINUTE SERIES
SHEET NUMBER 167 OF 184

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
LITTLE SOAP LAKE NE QUADRANGLE
SHEET NUMBER 168 OF 184



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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

152	153	154	152 JAMESON LAKE SE SW 153 JAMESON LAKE SE SE 154 PARK LAKE SW 167 LITTLE SOAP LAKE NW
167			

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LITTLE SOAP LAKE NE, WASHINGTON

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 155 Wenatchee NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 156 Wenatchee NE

DOUGLAS COUNTY, WASHINGTON
WENATCHEE SE QUADRANGLE
SHEET NUMBER 169 OF 184

Joins sheet 157 Rock Island NW

120°18′45″ — 120°15′00″ — 47°26′15″ — 47°22′30″

703 000m E — 704 — 705 — 706 — R. 20 E. — R. 21 E. — 707

T. 23 N. — T. 22 N.

5256 000m N — 5255 — 5254 — 5253 — 5252 — 5251 000m N

CHELAN COUNTY — COLUMBIA RIVER — East Wenatchee — Sand Canyon — BADGER MTN — ROAD — ROCK ISLAND ROAD

Joins sheet 170 Rock Island SW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

155	156	157	155 WENATCHEE NW 156 WENATCHEE NE 157 ROCK ISLAND NW
		170	170 ROCK ISLAND SW

WENATCHEE SE, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 169 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND SW QUADRANGLE
SHEET NUMBER 170 OF 184



Joins sheet 169 Wenatchee SE

Joins sheet 171 Rock Island SE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

156	157	158	156 WENATCHEE NE 157 ROCK ISLAND NW 158 ROCK ISLAND NE
169		171	169 WENATCHEE SE 171 ROCK ISLAND SE
		176	176 MALAGA NE

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Joins sheet 176 Malaga NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 157 Rock Island NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 158 Rock Island NE

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND SE QUADRANGLE
SHEET NUMBER 171 OF 184

Joins sheet 159 Malaga Northeast NW

120°11'15" 120°07'30"
712 000mE 713 714 715 716 R. 21 E. R. 22 E.
47°26'15" 47°22'30"
T. 23 N. T. 22 N.
5257 5256 000mN 5255 5254 5253 5252 5251 000mN



Joins sheet 170 Rock Island SW

Joins sheet 172 Malaga Northeast SW

Joins sheet 176 Malaga NE

Joins sheet 177 Rock Island Dam NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

157	158	159	157 ROCK ISLAND NW 158 ROCK ISLAND NE 159 MALAGA NORTHEAST NW
170		172	170 ROCK ISLAND SW 172 MALAGA NORTHEAST SW
	176	177	176 MALAGA NE 177 ROCK ISLAND DAM NW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 159 Rock Island NE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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120° 07′ 30″

Joins sheet 159 Malaga Northeast NW

DOUGLAS COUNTY, WASHINGTON
MALAGA NE SW QUADRANGLE
SHEET NUMBER 172 OF 184

120° 03′ 45″

Joins sheet 160 Malaga Northeast NE

47° 26′ 15″

T. 23 N.

T. 22 N.

R. 22 E.

17 000mE 718 719 720 721

5256000mN 5257 5255 5254 5253 5252 5251 000mN

Beaver Creek

Rock Island Creek

47° 22′ 30″

Joins sheet 171 Rock Island SE

Joins sheet 173 Malaga Northeast SE

Joins sheet 177 Rock Island Dam NW

Joins sheet 176 Malaga NE

Joins sheet 178 Rock Island Dam NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

158	159	160
171		173
176	177	178

158 ROCK ISLAND NE
159 MALAGA NORTHEAST NW
160 MALAGA NORTHEAST NE
171 ROCK ISLAND SE
173 MALAGA NORTHEAST SE
176 MALAGA NE
177 ROCK ISLAND DAM NW
178 ROCK ISLAND DAM NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
MALAGA NE SE QUADRANGLE
SHEET NUMBER 173 OF 184

Joins sheet 160 Malaga Northeast NE

120° 03′ 45″ — 120° 00′ 00″

722 000m E — 723 — 724 — 725 — R. 22 E. — R. 23 E. — 726

47° 26′ 15″ — T. 23 N. — T. 22 N.

5257 — 5256 000m N — 5255 — 5254 — 5253 — 5252 — 5251 000m N

47° 22′ 30″



Joins sheet 172 Malaga Northeast SW

Joins sheet 174 Palisades SW

Joins sheet 177 Rock Island Dam NW

Joins sheet 178 Rock Island Dam NE

Joins sheet 179 Appledale NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

159	160	161	159 MALAGA NORTHEAST NW 160 MALAGA NORTHEAST NE 161 PALISADES NW
172		174	172 MALAGA NORTHEAST SW 174 PALISADES SW
177	178	179	177 ROCK ISLAND DAM NW 178 ROCK ISLAND DAM NE 179 APPLEDALE NW

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MALAGA NE SE, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
PALISADES SW QUADRANGLE
SHEET NUMBER 174 OF 184

120°00′00″ — 119°56′15″ — 47°26′15″ — 47°22′30″

274000mE — 275 — R. 23 E. — 276 — 277 — 278

T. 23 N. — T. 22 N.

5256000mN — 5255 — 5254 — 5253 — 5252 — 5251000mN

Joins sheet 173 Malaga Northeast SE

Joins sheet 175 Palisades SE

Joins sheet 178 Rock Island Dam NE

Joins sheet 179 Appledale NW

Joins sheet 180 Appledale NE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

			160 MALAGA NE NE
			161 PALISADES NW
			162 PALISADES NE
			173 MALAGA NORTHEAST SE
			175 PALISADES SE
			~~178 ROCK ISLAND DAM NE~~
			179 APPLEDALE NW
			180 APPLEDALE NE

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~~Soil map delineations extending beyond the dashed~~ white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 161 Palisades NW

UNITED STATES
DEPARTMENT OF AGRICULTURE
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Joins sheet 162 Palisades NE

DOUGLAS COUNTY, WASHINGTON
PALISADES SE QUADRANGLE
SHEET NUMBER 175 OF 184

Joins sheet 163 Rattlesnake Springs NW

119°56′15″ — 279 000m E — 280 — R. 23 E. — 281 — 282 — 283 — 119°52′30″

47°26′15″ — T. 23 N. — T. 22 N.

5256 000m N — 5255 — 5254 — 5253 — 5252 — 5251 000m N

52 57 — 52 55 — 52 54 — 52 53 — 52 52 — 52 51 000m N

47°22′30″

Joins sheet 174 Palisades SW

Joins sheet 179 Appledale NW

Joins sheet 180 Appledale NE

Skookumchuck Canyon
COULEE
MOSES COULEE
Palisades
Whiskey Dick Creek
Petrified Canyon
GRANT COUNTY
GRANT COUNTY

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

161	162	163
174		
179	180	

161 PALISADES NW
162 PALISADES NE
163 RATTLESNAKE SPRINGS NW
174 PALISADES SW
179 APPLEDALE NW
180 APPLEDALE NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 170 Rock Island SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

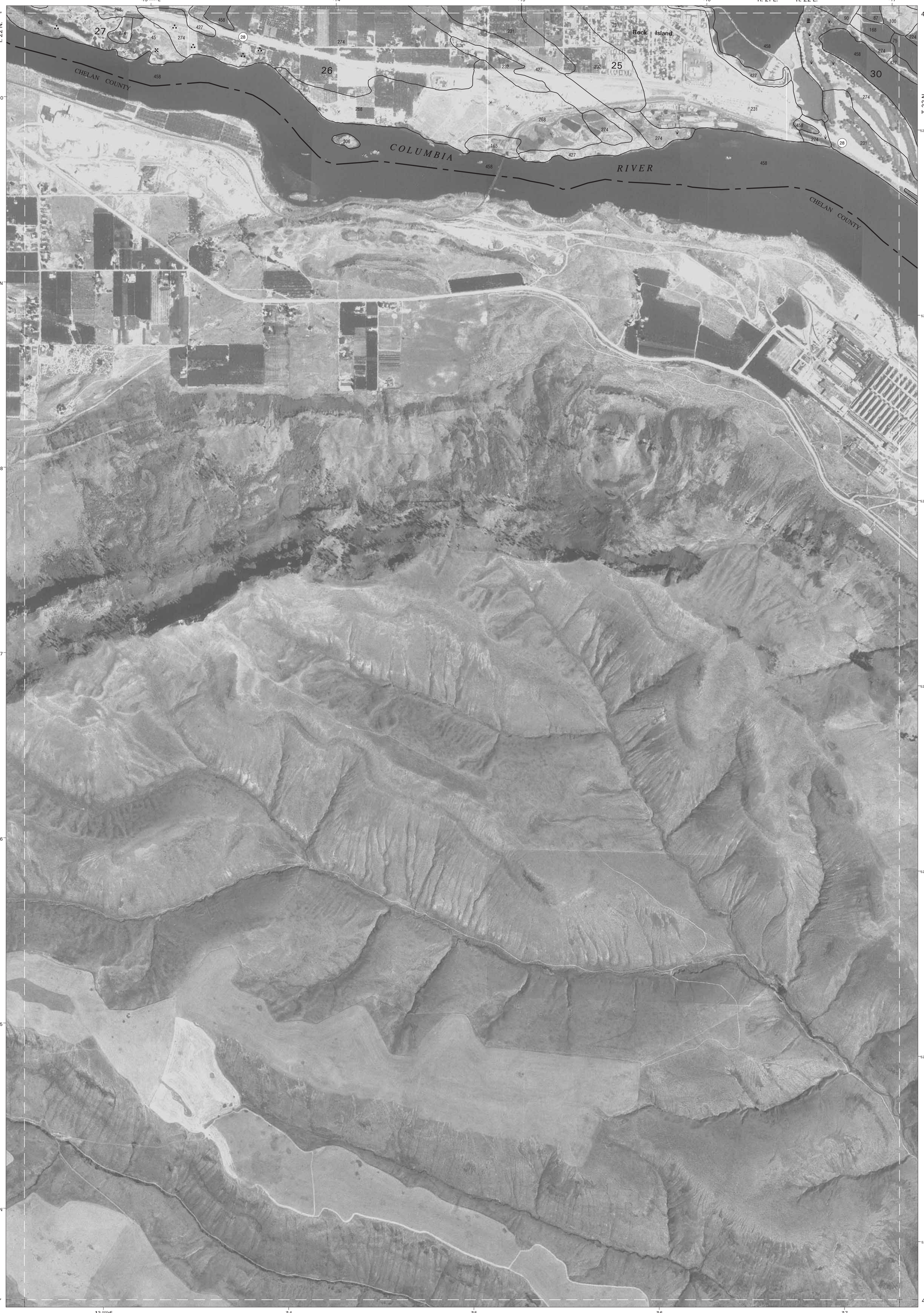
Joins sheet 171 Rock Island SE

DOUGLAS COUNTY, WASHINGTON
MALAGA NE QUADRANGLE
SHEET NUMBER 176 OF 184

Joins sheet 172 Malaga Northeast SW

120°11'15" 713 000mE 714 715 716 R. 21 E. R. 22 E. 717 120°07'30"

47°22'30" T. 22 N. 5250 5249 000mN 5248 5247 5246 5245 5244 000mN 47°18'45"



Joins sheet 177 Rock Island Dam NW

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

		172	170 ROCK ISLAND SW 171 ROCK ISLAND SE 172 MALAGA NORTHEAST SW
170	171		
		177	177 ROCK ISLAND DAM NW
		181	181 ROCK ISLAND DAM SW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 181 Rock Island Dam SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND DAM NW QUADRANGLE
SHEET NUMBER 177 OF 184

120° 07′ 30″ — 717 000mE — 718 — 719 — R. 22 E. — 720 — 721 — 120° 03′ 45″

47° 22′ 30″

5250

5249 000mN

5248

5247

5246

5245

5244 000mN

47° 18′ 45″

T. 22 N.

T. 21 N.

718 000mE — 719 — R. 22 E. — 720 — 721 — 722

120° 07′ 30″ — 120° 03′ 45″

Joins sheet 176 Malaga NE

Joins sheet 178 Rock Island Dam NE

Joins sheet 181 Rock Island Dam SW

Joins sheet 182 Rock Island Dam SE

CHELAN COUNTY

COLUMBIA RIVER

ROCK ISLAND STATE PARK

ROCK ISLAND DAM

ROCK ISLAND GRADE

ROCK ISLAND CREEK

FRALEY ROAD

28

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

171	172	173	171 ROCK ISLAND SE 172 MALAGA NORTHEAST SW 173 MALAGA NORTHEAST SE
176		178	176 MALAGA NE 178 ROCK ISLAND DAM NE
	181	182	181 ROCK ISLAND DAM SW 182 ROCK ISLAND DAM SE

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ROCK ISLAND DAM NW, WASHINGTON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 172 Malaga Northeast SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Joins sheet 173 Malaga Northeast SE

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND DAM NE QUADRANGLE
SHEET NUMBER 178 OF 184

Joins sheet 174 Palisades SW

120° 03′ 45″ — 120° 00′ 00″

7 22 000m E — 7 23 — 7 24 — 7 25 — R. 22 E. — 7 26 — R. 23 E.

47° 22′ 30″ — 52 51

5250 — 52 50 000m N

52 49 000m N — 52 49

T. 22 N. — 52 48 — 52 48 — T. 22 N.

T. 21 N. — 52 47 — 52 47 — T. 21 N.

52 46 — 52 46

52 45 — 52 45 000m N

47° 18′ 45″

7 22 000m E — 7 23 — 7 24 — 7 25 — 7 26 — R. 22 E. — R. 23 E. — 120° 00′ 00″

Joins sheet 177 Rock Island Dam NW

Joins sheet 179 Appledale NW

Joins sheet 181 Rock Island Dam SW

Joins sheet 182 Rock Island Dam SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

172	173	174
177		179
181	182	

172 MALAGA NORTHEAST SW
173 MALAGA NORTHEAST SE
174 PALISADES SW
177 ROCK ISLAND DAM NW
179 APPLEDALE NW
181 ROCK ISLAND DAM SW
182 ROCK ISLAND DAM SE

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ROCK ISLAND DAM NE, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 173 Malaga Northeast SE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
APPLEDALE NW QUADRANGLE
SHEET NUMBER 179 OF 184

Joins sheet 175 Palisades SE

Joins sheet 174 Palisades SW

120° 00′ 00″ — 119° 56′ 15″ — 47° 22′ 30″ — 47° 18′ 45″

274 000m E — 275 — 276 — R. 23 E. — 277 — 278

5251 — 52 50 — 5249 000m N — 52 48 — 52 47 — 52 46 — 52 45 — 5244 000m N

5250 000m N — 5245 000m N

T. 22 N. — T. 21 N.

Sutherland Canyon — MOUNTAIN — BADGER — COULEE — MOSES — GRANT COUNTY

Joins sheet 178 Rock Island Dam NE

Joins sheet 180 Appledale NE

Joins sheet 182 Rock Island Dam SE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

173	174	175	173 MALAGA NORTHEAST SE 174 PALISADES SW 175 PALISADES SE
178		180	178 ROCK ISLAND DAM NE 180 APPLEDALE NE
182			182 ROCK ISLAND DAM SE

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APPLEDALE NW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

174 PALISADES SW
175 PALISADES SE
179 APPLEDALE NW

APPLEDALE NE, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 176 Malaga NE

UNITED STATES
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Joins sheet 177 Rock Island Dam NW

DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND DAM SW QUADRANGLE
SHEET NUMBER 181 OF 184

Joins sheet 178 Rock Island Dam NE

120° 07′ 30″ — 120° 03′ 45″ — 47° 18′ 45″ — 47° 15′ 00″

718 000mE — 719 — 720 — 721 — R. 22 E. — 722

5243 — 52 42 000mN — 5241 — 5240 — 5239 — 5238 — 52 37 000mN

T. 21 N. — T. 20 N.

CHELAN COUNTY — DOUGLAS COUNTY — KITTITAS COUNTY

COLUMBIA RIVER

16 — 15 — 21 — 22 — 28 — 27 — 33 — 34 — 4 — 3

Joins sheet 182 Rock Island Dam SE

Joins sheet 183 West Bar NW

Joins sheet 184 West Bar NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

176	177	178	176 MALAGA NE 177 ROCK ISLAND DAM NW 178 ROCK ISLAND DAM NE
		182	182 ROCK ISLAND DAM SE
	183	184	183 WEST BAR NW 184 WEST BAR NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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DOUGLAS COUNTY, WASHINGTON
ROCK ISLAND DAM SE QUADRANGLE
SHEET NUMBER 182 OF 184

120° 03′ 45″ — 120° 00′ 00″ — 47° 18′ 45″ — 47° 15′ 00″

722 000m E — 723 — 724 — 725 — 726 — 727

R. 22 E. — R. 23 E.

5244 — 5243 000m N — 5242 — 5241 — 5240 — 5239 — 5238 000m N — 5237 000m N

T. 21 N. — T. 20 N.

GRANT COUNTY

COULEE

MOSES

Rocky Point

Joins sheet 181 Rock Island Dam SW

Joins sheet 184 West Bar NE

Joins sheet 183 West Bar NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

177	178	179	177 ROCK ISLAND DAM NW 178 ROCK ISLAND DAM NE 179 APPLEDALE NW
181			181 ROCK ISLAND DAM SW 183 WEST BAR NW
183	184		184 WEST BAR NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
120° 07′ 30″

Joins sheet 181 Rock Island Dam SW

DOUGLAS COUNTY, WASHINGTON
WEST BAR NW QUADRANGLE
SHEET NUMBER 183 OF 184
120° 03′ 45″

Joins sheet 182 Rock Island Dam SE



Joins sheet 184 West Bar NE

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North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

	181	182
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181 ROCK ISLAND DAM SW
182 ROCK ISLAND DAM SE
184 WEST BAR NE

WEST BAR NW, WASHINGTON
3.75 MINUTE SERIES
SHEET NUMBER 183 OF 184

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 181 Rock Island Dam SW

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

DOUGLAS COUNTY, WASHINGTON
WEST BAR NE QUADRANGLE
SHEET NUMBER 184 OF 184

Joins sheet 182 Rock Island Dam SE

Joins sheet 183 West Bar NW



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies at 1:24000 scale. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1990-1998 aerial photography. Administrative boundaries were acquired from the State of Washington. Boundaries may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 10. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

181	182	
183		

181 ROCK ISLAND DAM SW
182 ROCK ISLAND DAM SE
183 WEST BAR NW

WEST BAR NE, WASHINGTON
3.75 MINUTE SERIES
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